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THE SOCIOLOGIC ASPECT OF INSANITY AND ALLIED DEFECTS.*

By HUBERT WORK, M. D., PUEBLO, COLO.

Assuming that the human family, as we know it, has evolved from the ape, or at least from a more primitive type of man, whose methods of procuring food were less complicated than ours, it becomes evident that such evolution must have been impossible unless defectives had been allowed to perish and the stronger perpetuate the species.

With the refinements of intellectual development came as its crowning glory the ethical sense, prompting us to protect each other, especially the weakling. He is, therefore, no longer allowed to perish but is matured in charity, to perpetuate his defects, incapable of personal control, much less self-support. Our high intellectual development has devised means of keeping alive a defective type of humanity which has already impressed itself upon the race, as 4% of our children to-day are feeble-minded with a larger unknown proportion defective to a lesser degree.

It is no longer sufficient to boast of the high evolution attained, and quarrel about how it began, but we must go farther and discuss methods to prevent a reversion towards the original type, whether the first cause was an ape, an atom, or an edict.

The term "Feeble-minded" was devised by Americans to include the imbecile, who differs from the insane in that he has neither delusions nor lucid intervals; an anti-social being, but of many grades of intelligence. It also includes the idiot who is

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without mind, consequently extra-social, because fatuous. Both these multi-defective beings resemble our conception of primitive man. No really feeble-minded person ever was or ever will be cured, differing in this respect from the insane, who, because once normal, may recover that which they lost, while the feeble-minded can never recover nor transmit that which they never had.

Under the guise of charity we are undergoing reversion, a term we may no longer use within hearing of the followers of Mendel; although they use it in explaining that it does not exist, claiming that the feeble-minded are not reversions but recessives, or the result of poisoning, notably by alcohol; that primitive man was not feeble-minded nor is the ape; neglecting, however, to explain away the predominance of animal characteristics in the three types as against the physical uniformity and ethical control of normal man, except to say that the feeble-minded are such through failure to develop completely.

It is not the purpose of the present moment to weave theories or to cut garments to fit obvious facts from theories already woven. I prefer to deal directly with conditions at hand; the sociologic aspect of insanity and its allied defects.

To quote Kraepelin: "We must, therefore, regard statistics of heredity in insanity merely as facts of experience without finding in them the expression of a 'law' which should hold in every case."

Applied eugenics mean, to-day, that we must advise against the perpetuation of known defects of mind, whether inherited or acquired, simply because

"The soul of all improvement
Is the improvement of the soul."

If excuse for our interest in preventive psychiatry were necessary, I might quote Oliver Wendell Holmes who said "the development of a boy should begin with his grandfather," and the attention of taxpayers might be enlisted by reciting that the single state of New York now has an insane population in hospitals and almshouses of 33,000 patients, maintained at an annual expense of \$8,000,000.

During the past ten years New York has spent for the care of the insane, \$54,000,000. About one-sixth of its total expenditure

is for the care of the insane. It equals an annual tax of 70 cents on every man, woman and child of that state.

The estimated annual cost of this class in the United States is \$64,000,000 for care only. When there is added to this the expenses incident to adjudications and transportation, together with the economic loss to families impoverished by the care of a defective member with the impaired efficiency of those returned home not fully restored, it becomes clear that the insanity of our people by direct tax and by indirect depreciation of these threads in the social woof, is at once our greatest financial burden and sociologic menace.

It is time we knew where they are coming from; our 300,000 insane and feeble-minded; our 160,000 blind and deaf, our 2,000,000 that are annually cared for in hospitals and homes; our 80,000 prisoners and the thousands of criminals not in prison and our 100,000 paupers in almshouses and out.

To me, this is the new world for us to aid in conquering; a world of the unreal, peopled by those who forget yesterday, do not anticipate tomorrow, but are the children of a day.

It may be said of this association, the oldest and largest American organization of men in special work, that its scientific excursions into new fields of medical research have been as frequent and as fruitful as those in other lines of practice in medication, nursing and housing of the sick.

Our laboratories are fully equipped and our investigators are equally alert. In the physical care of the congregated sick we are masters in medicine. Neither is it too much to say that we are better qualified, through more modern facilities, to obtain results than our European brothers are.

Dr. Orpheus Everts, now deceased, once a distinguished member of this association, twenty-five years ago, said:

Already the hill-tops of science are luminous, and men of intelligence and learning no longer dwell in an atmosphere of gloom peopled with imaginary beings, gods and demons, standing in the relation of invisible causes to all visible effects; but moving ever on and up toward the greater light, realize the fact, that with every step taken vision becomes clearer and more comprehensive, and that positions may be occupied to-day with safety that but yesterday seemed to be dangerous, if not inaccessible.

This prophecy has been fulfilled. We *have* advanced scientifically to a position in the medical world hardly thought of twenty-

five years ago, so that our qualifications have added responsibilities and opened to us new fields.

Indeed, we have already sent out pioneers. The American Breeders Association has organized a Commission of Eugenics consisting of David Starr Jordan, Alexander Graham Bell, Luther Burbank, Adolf Meyer, et al. Its sub-commission on insanity is officered by Adolf Meyer as chairman and E. E. Southard, as secretary, both valued members of this association, with whom collaboration would be a distinction.

Our improved methods of caring for the insane contribute to an increase of the by-product of the human family. The lives of the incurable are immeasurably prolonged. The improvable are promptly returned home to reproduce their kind. Many of you superintendents have admitted the defective child of a restored patient discharged years before, whereas a century since the parent would have been destroyed by his malady and his line cut off.

"The recovered" insane in most instances mean merely "not dangerous" and their offspring are in constant peril.

As a people we have refused to hide behind the hint:

"Thou shalt not kill but needs't not strive
Officiously to keep alive."

Normal boys strive for existence, often perishing through the exactions of the strife; their fatuous brothers are protected and reared to beget half-wits.

Although statistics teach much, they are tiresome also, and I need only recall that approximately 65% of the insane are such through heredity, 15% from alcoholism and drug addiction, the predisposition to which is from parents, not themselves necessarily inebriates, but of abnormal mentality, 10% are incapacitated from syphilis either inherited or acquired, the remaining 10% from senility and other causes; 75%, in fact, will not cover all forms of intellectual defect due to heredity. We have then a total of 90% from avoidable if not preventable causes, under our liberal form of government, altruistic in theory and stimulating in practice to those who need not the law, but failing dismally to distinguish between a liberty of action that encourages uplift, and a license that results in degenerate offspring, entailing a money tax on

clean living people, moral degradation to those in contact with them and inevitable depreciation of the human fabric.

Humanitarians estimate the toll exacted by the "White Plague," in dollars, through deaths and loss of efficiency. Much publicity is given the subject, societies are formed, the public informed, marriage of the infected advised against, millions of dollars thrown into endowment funds for the study of it and into hospitals for sick care: meanwhile the silent multiplication of deteriorates is permitted in every state and encouraged in some, through contact in almshouses of both sexes. To my personal knowledge a supervisor of the poor in Pennsylvania induced a feeble-minded man to marry an imbecile woman with a brood of defective children of many fathers; doubtless proud that he had legitimized an entire family, present and to come, incidentally shifting a financial burden to the next county, with seed to found families; possibly rivaling the notorious Jukes of criminal literature.

If two imbeciles marry, the offspring are all imbeciles, while their ability to procreate is attested by the marriage of a feeble-minded man of 38 to a delicate wife and twenty years later he was the father of nineteen imbecile children.

Dr. Johnstone found that feeble-minded women are nearly twice as prolific as normal females. Dr. Kiernan's investigations of ninety degenerate families disclosed the average number of children to be eleven, also that multiple births occurred ten times more frequently than in the general population. Davenport could find no case on record in which two imbecile parents have produced a normal child.

Much as a decaying tree will bear fruit abundantly but leaves sparingly, blighted nature attempts to perpetuate its kind through seed, at the same time exhausting its vitality.

Whether or not genius is born and not made, we do know that these human misfits are recessive determinates.

The influences of heredity and environment are usually interwoven so that the hoary discussions of their relative bearing will not end in our time and need not distract us from discussing what we definitely know of the former.

Dr. Robertson uses the genealogy, prepared by Dugdale in 1873, of one drunken, worthless vagabond, born about 1720, as a com-

parison with that of the Edwards family to further strengthen the established belief in heredity.

Twelve hundred descendants were traced as having been inmates of penal and charitable institutions previous to 1874, a period of 100 years. None of them was at any time of any value to their communities, 310 were in poorhouses a total of 2300 years, 300 died in childhood, 440 suffered from the diseases of vice, 400 were early wrecked by vices, 50 were notorious prostitutes, 7 murderers, 60 habitual thieves who spent an average of 12 years each in prison, 130 were frequently convicted of lesser crimes.

Surely "Nature is subdued to what it works in,
—like the dyer's hand."

For purposes of comparison: Jonathan Edwards was born in 1703; 1394 of his descendants were identified in 1900, of whom 295 were college graduates; 13 presidents of our greatest colleges; 65 professors in colleges, besides many principals of other important educational institutions; 60 physicians, many of whom were eminent; 100 clergymen, missionaries or theological professors; 75 were officers in the navy or army; 60 prominent authors and writers, by whom 135 books of merit were written and published and 18 periodicals edited; 33 American states, several foreign countries and 92 American cities and villages profited by their beneficent activity; 100 were lawyers; 30 were judges; 80 held public office, one of whom was Vice-President; and 3 United States senators. It is not known that any one of them was ever convicted of a crime.

It is unnecessary for us to establish a premise and reason from cause to effect. We have the patent result in our defective classes at hand and may make the easier progress backwards in this study—definite conclusions from established facts rather than conjecture from doubtful premise.

Animals maintain the strength of species by mastery over their weaklings. Our civilization sympathizes with and protects physical weakness. Moreover, with higher "civilization" and consequent greater instability, a higher proportion of degeneracy obtains.

Half a century ago about 400,000 of our best men perished in the war between the states. Those less vigorous were left at

home to become fathers. Our reunited states have been phenomenally prosperous, but nothing fails like success when applied to nations, because it means the indiscriminate survival, more particularly of those who would perish through exigencies of want, and the units of government are thus depreciated by a leaven of mediocrity.

Whether Rome fell through brutality of its sports, the protection of its pauper class, wars, tyrants, tax gatherers, admixture of races, malaria, or a combination of these, does not concern us. We need not look so far back for what threatens the United States now.

The unlicensed transmission to offspring of incurable mental and physical defects will in time encompass our decadence.

Race suicide has already attracted alarmed attention from political economists of this and older nations. Doubtless this crime has received impetus from the unwillingness of disease-tainted parents to impart defects to offspring.

Some sort of protection against the sane with neuro-pathic taint or acquired disease who insist upon marriage, must be thought out. Laws should be framed to punish a man who marries and infects innocent womanhood. Our moral sense would applaud any expedient short of murder which promises immunity from conjugal infection to the pure wife, or the maternal anguish of having borne a disease-corroded child.

It seems idle to multiply proofs on a subject agreed upon by scientists, or to bring up the allied branch of crime and its cost in lives and money, for the first causes are the same and the certainty of hereditary taint is the same.

Psychologically the lines of descent diverge towards imbecility, insanity, pauperism and crime. Sociologically they converge towards institutions for public support of the criminal and mental incompetent—to their seclusion from the world because they cannot become a part of it.

All this to you men is elementary and its repetition would not be justified were it not true that the human family is the victim of an insidious blight which threatens its destruction, a malady we have elected to study and treat, but which as an organization we have neglected until states have initiated measures independent of us.

Much has been said against the marriage of the unfit. Acts have been framed and a few laws have been enacted only to prove futile except so far as such discussions tend to direct the public mind to a matter of national moment—the breeding of the highest type of humanity by eliminating the unfit.

Recognizing the failure of enactments to reach individual cases and to prevent the propagation of defectives, a few states have authorized the sterilization of men and women unfit to procreate the average type of humanity.

The members of this association as individual authorities should help their several states and provinces in a survey of their own children, to measure their defects, to estimate what kind of citizens they are growing and to urge legal enactments intended to limit the generation of feeble-minded, insane, epileptics, syphilitics and criminals.

That the descendants of one man, born about 1720, cost New York state \$1,200,000 in 75 years, shows how slowly society takes scientific cognizance of itself, for these statistics by Dugdale were not seriously considered; only recently were they resurrected by the Carnegie Institution which promises to trace this derelict family and compute its cost to the public to date.

Ten years ago an attempt was made to estimate the proportion of insane, idiots and imbeciles in the Canton of Berne, Switzerland.

It was found to be 1 in 117 in the general population.

One defective Swiss woman cost her government \$1,250,000 through her 707 traced descendants. Of these 106 were born out of wedlock; 142 were beggars; and 64 lived on charity. Among the women, 181 were immoral; 76 were convicts; and 7 murderers, suggesting that the hand which "wrecks" the cradle rules the world.

Were the regulation of marriages possible it would not be effective in limiting the curse of feeble-mindedness and its drunken, criminal, lunatic spawn, for marital rights are not essential to procreation and the moral sense is wanting in the imbecile.

Apparently there are but two remedies for this social pollution. The segregation of the abnormal at puberty by holding them in institutions during their procreative period, or rendering them sterile.

Segregation has been attempted for a hundred years with the practical result that insanity has increased 25% while the whole population has increased 11% to say nothing of an annual, direct, increasing tax on the people of millions of dollars. This alone is proof of its failure, not to mention a greater public expense for its congeners, the criminal and pauper classes.

We are then perforce compelled to invoke the alternative of sterilization. Accepting this dictum as established, two difficulties present themselves:

1. Where shall the line be drawn?
2. The surgical procedure.

The high-grade imbecile of the public schools is a source of danger because passing in society as normal—a uni-defective, therefore, not under surveillance—often, indeed, petted and pushed forward because of precocity in a single attribute of mind—the flaming of a spark of genius fed by the combustion of cerebral energy diverted from mental attributes not developed, or stimulated by precocity the precursor of premature disintegration. This remote type socially protected from law enforcement will not become amenable to legal inspection or control.

Broadly stated, then, those who would come within the scope of the state's authority to sterilize should be those for whom it becomes a guardian because of mental defect, or for crime, or both; those who, if allowed to produce offspring, would beget children mentally enfeebled, incapable of self-support or self-government.

The laws of heredity are definite enough and sufficiently well understood to guarantee that no injustice need be feared. If an apparently normal child *should* appear in a neuro-pathic family the mental stain may be confidently expected in the first or second generation following him.

Criminologists believe that there is no criminal type but that an instability of the nervous system is the basis of habitual crime, the same nervous instability, if you please, which lies back of all abnormal functional cerebration.

Mindful that punishment has failed to greatly lessen crime may we not hope that with the knowledge of the increasing burden from these enemies of public polity, society will welcome measures looking more to the extinction of the criminal degenerate than to

his reformation in the light of what has been accomplished by ages of penal enactment.

Unfortunately sterilization, when first practised, was done by castration necessitating mutilation with loss of structure which is associated in the public mind with punishment. In lay-discussion of this subject the fact should be kept prominent that the operation must never be advised as a punitive measure but invoked only as a quarantine expedient, precisely as the infected are prevented from contaminating the well. Imbecility is not a crime *per se* although its propagation should be so designated.

Dr. Sharp, of Indianapolis, has said:

It can readily be seen that one subjected to castration would in all probability become morose and downcast on account of the deformity alone. Besides, the testicle has a double function, that of providing an internal as well as an external secretion, and the organism cannot maintain a normal condition when robbed of this internal secretion. This is manifested by the perceptible change in the eunuch.

This operation is very simple and easy to perform. I do it without administering an anesthetic either general or local. It requires about three minutes' time to perform the operation and the subject returns to his work immediately, suffering no inconvenience, and is in no way hampered in his pursuit of life, liberty and happiness, *but* is effectively sterilized.

Dr. Sharp had been doing this operation for over ten years, operating upon 456 cases in all. He has had a splendid opportunity for postoperative observation and has never seen any unfavorable symptoms.

All other methods proposed place restrictions, and, therefore, punishment on the subject; this method does not. There is no expense to the state, no sorrow or shame to the friends of the individual, as there is bound to be in segregation.

More recently surgery has demonstrated that the proximal end of the vas should be left patulous for the discharge of testicular secretion, the distal end being crushed. *Fallectomy* is practised upon the female for the same conditions and with equal success.

Objections to sterilization will continue to be raised in the name of "personal liberty" by those who think they think, using words as children do blocks instead of facts upon which to establish theories.

Does the feeble-minded prostitute of the streets have any liberty?—harassed by peace officers in preserving the semblance

of public decency and hounded by low men and boys, starved, diseased and deserted. There be neither life, liberty nor pursuit of happiness for this hand-maiden of illegitimacy except through the espionage of a wholesome public mind.

We are all derived from the society of the past and will pass into the society of the future. For these reasons the society of to-day has the right to inquire into our personal defects, to learn whence they came and through this knowledge to protect posterity.

I know of no more rational answer to this abstract question than that elicited by a personal application. Who of us having a defective child would not answer the last call more cheerfully, knowing that our living sorrow was left incapable of producing non-descript offspring to perpetuate the family name through generations of defectives?

Pennsylvania, through its General Assembly of 1905, passed an act which its governor refused to sign, which sought to legalize human sterilization. Again, in 1911, a similar act was introduced, but failed to become a law.

In 1906 the Legislature of Wisconsin discussed a sterilization bill but postponed it pending an investigation regarding the mental defectives of the state.

In 1908 the state of Oregon passed a sterilization act which its governor vetoed; so a law was passed nullifying his prerogative in this respect.

In 1910 a bill for sterilization was introduced into the Ontario (Canada) Parliament which was talked out of it by the Prime Minister.

The histories of these failures to enact laws uniformly show the governor to be the objector. Let us not urge this fact as an additional argument in favor of limiting the legislative prerogatives of the feeble-minded, also!

However, these agitations and discussions were not without result. In 1907 Indiana enacted such a law. Iowa, Oregon, Utah, Connecticut and California have sterilization laws of liberal scope.

As evidence that the ranks of the pauper class are enormously augmented by the feeble-minded, Dr. Rentoul, of Liverpool, cites the instance of 5 feeble-minded women who gave birth to 15 feeble-minded children, and quotes Dr. Pott's figures concerning

16 feeble-minded women in one English almshouse who gave birth to 116 idiot children, while the 1905 report on Inebriate Homes in England states that 92 habitual inebriate women had given birth to 850 children.

Feeble-mindedness is relatively infrequent as an accident of birth or infantile illness but is usually a definite inheritance. The more inebriates the more degenerates and conversely, the more mental defectives the more inebriates and paupers, forming a vicious circle from which there seems no escape except through sterilization.

It is quite possible for parents with normal faculties, through dissipation, vice or disease, to produce deteriorated children, but there is no method by which the tendency can be reversed. Degeneration is invited by refinements of organization. Regeneration of the mind cannot be effected with parts of the mechanism necessary to generate mind destroyed.

In his annual report under the head of Preventive Eugenics, the word painter pre-eminent of this association entered a plea for the nervous temperament which often displays eccentric originalities which amuse us. The nervous diathesis does not predispose to insanity nor indicate it except it be surface play from a tainted ancestor. The power of fancy over reason is not an exclusive attribute of this temperament but dominates the immature in mind as well. Collapse of the nervous diathesis is invited by its intensity and is acute—a functional sequel of over-strain—the wrecking of the prodigy that entertained us momentarily. Arguments favoring unrestricted propagation are based on the fear that the world might lose a genius. Single talent genius that springs from defective families is the ignis-fatuus of a night, a light from the social slough—its ancestry in doubt and leaving no posterity, although itself of passing brilliancy. Gratifying as may be the restoration of a patient wrecked through nervous diathesis and delightful as the contemplation of warped fancy may be to those who revel in the unusual, an amused tolerance of those with “brain cracks” is far from the mark we should set to obviate their birth.

The permanency of a nation is dependent upon its physical ethics. The traditions of our government for centuries past have been bound about by religious restraints more than now, many of

them superstitions possibly, but withal deterrent to prostitutions of the body. The limitations they imposed inured to healthy offspring with balanced minds and in turn healthy morals; a psychologic cycle, the evolving antithesis of the vicious cycle of degenerate mentality. The relaxation of the fundamental teachings of the last generation contributes to mental instability, since the first essential to integrity of mental processes is that the mind should be anchored to something which it regarded as established. At the time when didactic instructions in morals were daily mental gymnastics of children the nervous diathesis was called hysteria and treated by "laying on of hands." "Nerves" is a modern term not found in the nomenclature of the Pilgrims.

A feature of imbecility not emphasized by humanitarians is the physical suffering entailed throughout life to the individual. Mental weakness implies low vitality with invited disease and chronic invalidism, the prevention of which is legitimate.

That imbecility should be "let alone," that "nature will purify itself as the stream does," that "the fittest will survive," and like fallacies are controverted by the knowledge that contaminated nature has diminished power of purification, and that the stream of human generation is being constantly defiled by polluted springs.

Philanthropic persons, boards and associations are being aroused. The word eugenics has a new meaning, because of the unvoiced complaint of 20,000 feeble-minded children confined in institutions, 1400 being added each year while 100,000 wait in want without, deprived of ethical sense, perpetuating their kind with more license than is permitted to animals.

New York State through its Charities Aid Association has issued an appeal through thousands of pamphlets entitled "Why Should Any One Go Insane?" with circular letters asking co-operation. While an out-patient department has been instituted at the Long Island State Hospital, a new Psychopathic Hospital has been opened at Syracuse, one is promised at Kings County Hospital and another at the new Gouverneur Hospital in New York City, thus attempting to stay borderline cases and prevent the dethronement of wavering minds in those who should never have been born.

Prophylactic psychiatry is no new thing and I beg of this association to divert at least a modicum of the energy devoted to the

care of the unhappy people brought to us for treatment, to teachings that may prevent their coming in ever-increasing numbers. It is not possible for the normal mind in a healthy body to become insane and I am not in harmony with the statistician who argues because the total population of the United States has increased about 11% in the past six years, and the number of insane has been augmented during the same period by 25%, that *a priori*, in 300 years all will be insane.

If the highest test of sanity be "the ability to adapt self to environment," the American people as a whole are more sane to-day than before in history. Although the per cent of insanity per thousand has increased, the relative sanity of the body politic has been raised and will very soon direct itself against its antithesis, insanity.

The multiplying of the defective classes is the largest sociologic problem before the American people which must very soon invite the attention of our government, from the cabinet officer to the township trustee. Logically they will look first to this association for matured advice and suggestions for procedure, after the census bureau has compiled the figures and public conscience has compelled attention.

The country owes it to itself as a matter of self-preservation that every imbecile of productive age should be held in such restraint that reproduction is out of the question. This having proven impracticable through institutional seclusion, because of expense and the interference of relatives, then sterilization is necessary. Where the life of the state is threatened extreme measures may and must be taken.

The sentiment, nation-wide, which instantly came to the support of Dr. Wiley in his efforts to protect our people against food and drug adulterations: the national sentiment against the poison of alcohol; the education of public school children in hygiene—literally meaning their warning against diseases; all may be relied upon to aid us in a fight against adulteration of the human mind against the poison of vicious inheritance, against the perpetuation of degeneracy, to the economic loss of average efficiency of the nation.

The new science of medicine dealing with vaccine therapy, recognizing the mosquito and common house-fly (with the sand-fly

under suspicion), as carriers of the common diseases, which has rendered diphtheria, typhoid, rabies and small-pox preventable, with other medical triumphs tediously numerous, leaves the field of preventive psychiatry isolated, as though the old belief obtained, that it is the domain of evil spirits which we fear to enter.

Our national prosperity largely due to its climate, religious freedom and virgin soil has enabled us to carry the financial burden and social curse of feeble-mindedness amazingly well but:

"Ill fares the land to hastening ills a prey,
Where wealth accumulates and men decay."

Our dangers from unfriendly nations are minimized by the greater danger that we may impoverish ourselves by taxation for the support of our mental derelicts, by direct enfeeblement of individuals with indirect national inefficiency, against which our attitude as superintendents must be that of physicians, alienists, political economists, sociologists and through it all humanitarians.

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FURTHER OBSERVATIONS ON ALZHEIMER'S DISEASE.*

By SOLOMON C. FULLER, M.D. AND HENRY I. KLOPP, M.D.

(From the Psychopathic Division and Pathological Laboratory, Westborough State Hospital, Westborough, Massachusetts.)

One of us has recently described what we believe to be the 8th recorded case of so-called Alzheimer's disease,¹ that is, certain histopathological alterations of the brain indicative of senile involution associated with clinical symptoms such as are exhibited in the severest form of senile dementia, but appearing in comparatively young persons. Included among the clinical symptoms are phenomena suggestive of coarse focal lesions of the brain—aphasic and apractic disturbances—which have not been accounted for by coarse focal lesions at autopsy.

For purposes of comparison there were added to the report of the first Westborough case the clinical histories of all cases then known to us, 10 from foreign literature and 2 from American sources, together with a critical analysis of these histories and their associated anatomical findings. It was shown that despite certain basic characteristics, more or less present in all of the cases, essential differences existed which precluded for the present any dogmatic statement as to the exact clinical grouping of these cases, as well as any claim for a definite gross or histopathological anatomy. Nevertheless, in so far as one may be justified in correlating anatomical changes with clinical symptoms, there is much in the finer anatomy as a whole to indicate a psychosis dependent in a great degree upon involutional changes in the brain and blood vascular apparatus, while the clinical histories offer many features which we are accustomed to associate with senile mental disorders.

The first case of Alzheimer's disease to be recognized as such at Westborough was, clinically and anatomically, quite comparable to the first case reported by Alzheimer² and the group of cases

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later collected and published by Perusini.³ The case which forms the subject of this communication did not exhibit anatomically the peculiar type of intracellular neurofibril alteration common to the majority of reported cases, and in this respect is like Alzheimer's second case,⁴ the only other to our knowledge in which the basket-like appearance of many ganglion cells was wanting. So-called senile plaques while present were neither large nor numerous, and differed slightly in structure from plaques as usually described, but exhibited among themselves a great degree of uniformity. Moreover, the mode of onset and much of the clinical course suggest that certain exogenous toxic factors, which as a rule we do not link with the exciting or even the predisposing causes of senile psychosis, are, perhaps, more frequently operative than has been supposed.

Before going on to the history of this case we quote from the paper referred to above¹ a brief summary of the leading clinical features of all of the cases as revealed by the literature: "About middle life or slightly past, with one exception where the onset was in early adult life, memory defect, disturbance of retention and general mental weakening set in and progress to a marked dementia, in some of the cases slowly, in others rapidly. Early in the course of the affection aphasic disturbances—verbal amnesia, occasional paraphasia and jargon, impairment of ability to comprehend spoken language, graphic disturbances, verbal and literal perseveration—ideational apraxias and agnosias develop, varying from time to time in severity, but never as intense or consistent as the speech disturbances and apraxias originating from coarse focal lesions of the brain. Mental confusion with some delirium, lack of bladder and rectal control * without evidence of limb paralyses, good preservation of gross muscular strength, considerable motor activity and general restlessness have been striking features of the majority of the cases. Auditory and visual hallucinations with apprehensive delusions based upon them and spatial as well as temporal disorientation have been, in instances, likewise characteristic. Disturbances of the motor projection paths were slight or absent; if occurring at all usually appeared late, even then were

* Not necessarily the result of paralyses, but rather the untidiness that is commonly associated with confused states and marked dementia.

often transitory. In a few instances motor disturbances have been noted as residua of epileptiform convulsions. Convulsions with loss of consciousness, with one exception,[†] have not been observed save in the terminal stage, epileptiform attacks and muscular twitchings being recorded. With exception of Case II, luetic infection does not appear in the anamneses. Alcoholic indulgence while mentioned as moderate in Cases VI and VIII and pronounced in II and VII seems to have played no rôle, or, at most, a minor one."

So far as we are aware, these still remain the salient clinical features of this type of cases. The original anatomical picture, on the other hand, has undergone considerable modification, although preserving the close kinship with the histopathological alterations of senile cerebral involution. The anatomical changes of this atypical senile group together with what may reasonably serve as a criterion for a senile psychosis will be discussed more in detail in the further course of this paper.

The history of the second case of Alzheimer's disease to come to autopsy at Westborough State Hospital is as follows:

No. 9879, a woman of 56 years was admitted to Westborough State Hospital December 10, 1911, on a transfer from the Arlington Health Resort, a private institution for nervous and mental diseases, where she had been a patient since August 8, 1911.

It is reported that throughout life the patient had been of the so-called nervous temperament, quick and sensitive—but until the present illness had usually exercised good self-control. In 1883 while descending a flight of stone stairs she fell, striking the coccyx, and has had soreness in that region ever since. Some 25 years ago she received rather painful injuries in an accident, she was thrown from a moving carriage, sustaining extensive lacerations about the head, one of which nearly severed an ear, and was dragged for a considerable distance over the granite paved blocks of the street. She was unconscious for 27 days after the accident, but no history of paralysis, speech disturbance or amnesias following the occurrence was elicited. During several years thereafter she suffered severe periodical headaches at intervals of about 3 months, the attacks lasting on an average of 3 days and each leaving her quite exhausted physically. In about 3 days after the cessation of the cephalalgia she would regain her usual health. These periodical headaches, however, had long since ceased. In 1909 she had an attack of broncho-pneumonia, said to have been of short duration and from which she made a good recovery, her general health, save for habitual

[†] The case here reported is also an exception.

constipation, remaining good until the onset of the present illness, in May, 1911. At that time a particularly malignant streptococcic tonsilitis was prevalent in Boston and its vicinity, a form of tonsilitis which often proved fatal to infected persons over 50. A son-in-law, in whose household the patient lived, and his wife (her daughter) contracted the infection; and our patient undertook their nursing, the care of a young grandchild and the management of the household. After a short while she, too, developed a sore throat which, it appears, was of a milder type. At any rate for the reason of her many responsibilities, her friends state, she did not "give in to it," continuing to care for the sick members of the family and ordering the household affairs.

June 23, 1911, the son-in-law died as the result of the malignant tonsilitis. Almost immediately thereafter the patient developed an articular rheumatism affecting the legs, arms and hands. Even then she did not take to bed, for she was very busy with preparations for changing the residence of the family, most of the work devolving upon her since the daughter though recuperating was still not strong. The arthritis persisted for about a month.

August 1, 1911, she was free from pains in the joints, but was in very poor physical condition and was extremely nervous. For several weeks there had been a progressive asthenia, rapid emaciation and marked insomnia. For about a month although retiring at a late hour she could not sleep after 3 a. m. when, because of the restlessness engendered by the loss of sleep, she would get up and begin the day's work at that hour. Meanwhile in addition to rather vague and general apprehensions she was particularly apprehensive as to the future of her daughter and grandchild, now that their breadwinner and natural protector was gone, an apprehension far in excess of the normal. Always possessing a fear of hospitals of any nature whatsoever, this feeling became accentuated. From her impaired physical condition she concluded that a serious illness was imminent, and there was also a sense of impending death, for she frequently gave directions to her daughter for the disposition of her belongings in case anything happened to her.

August 3, 1911, certain disorders of speech were noted, described by friends as "peculiar." On questioning the relatives it was learned that these speech disturbances resolved themselves into irrelevancy, desultoriness, hesitancy as though groping for the proper words and occasional paraphasia, whereas formerly, a woman of good education, she was a ready talker and possessed the faculty of expressing her thoughts clearly and to the point. Short periods of confusion were also reported in which she did not seem to know what she was about. Memory, too, was rapidly becoming impaired and with all of it there was some depression and self-accusation. She frequently remarked after the death of her son-in-law, "I did not do enough for him, he might have lived had I given him better care," etc. She complained of noises in the head which were described as "like a great rush of water" and was frequently agitated over trifles. During the 3 days prior to being sent away visual and auditory hallucinations developed along with apprehensive delusions based upon them. She would hide

beneath the bed clothing; cry out in terror that "they" would put her to "the living death," burn her up, etc. She also spoke of hearing "voices from a throng of people," of seeing frightful animals on the bed and walls of the room and begged not to be left alone. During this excited period she was disoriented for time and place, but recognized the members of her family.

August 7, 1911, she was sent to Dr. Ring's Sanatorium, Arlington, where she arrived in a condition of stupor. An hour later she was aroused with difficulty, did not know how long she had been there or where she was. When questioned she replied only with repetition of the question. During the night she became more lucid, but was still disoriented; kept her head beneath the bed clothing, was apprehensive and extremely noisy. She was also actively hallucinated, in the manner as described above. In consequence of her disturbed condition she was removed to the Arlington Health Resort. On arrival at that institution she was still hallucinated and appeared suspicious of her surroundings. She did not sleep during the first night, although she was fairly quiet. The following day she had 3 epileptiform seizures which the physician at that institution was inclined to consider of an hysterical nature. No paralytic phenomena ensued. During the next day alternating periods of confusion and periods of a fair degree of mental clearness are reported, but at night she was very restless and talked a great deal in an incoherent manner.

August 10, 1911. Increased apprehension, especially intensified when left alone; active auditory hallucinations which seemed to form the basis of delusions that men were coming to shoot her. She was very noisy and exhibited considerable motor reproduction.

Gradually, in about 3 weeks, the apprehension and hallucinations diminished, finally disappearing. She developed considerable insight, slept well, enjoyed the visits of relatives, was out of doors most of the day and looked forward to returning home a well person. This improvement, however, was of short duration, less than a week.

One morning she seemed slightly depressed and refused food. During the day she gave evidence of hallucinations, saying that she heard two men in the field talking of killing her, adding that she would not be "shot down like a dog." The old fears and apprehension returned, but she was not as noisy as formerly. She would hide or remain perfectly quiet, and frequently begged to be protected from the torture that was coming to her. She distrusted everyone, including her family, and developed certain ideas of negation, as for example, she had "no husband" "no daughter," "no nothing," etc. She not only refused to recognize her husband and daughter when they visited her, but handled them roughly when they made advances. When they were about to leave her she always wished them to stay longer, even though a few moments before she had said they were nothing to her.

This condition, our informant, Dr. A. H. Ring, states, persisted until the patient left Arlington Health Resort, with addition of increased depression, agitation, refusal of food and some retardation.

When admitted to Westborough State Hospital she was in rather poorly nourished physical condition, and appeared considerably older than her

stated age (56), gait rather unsteady, but no indication of paralyses of lower extremities. The heart's action was rapid, but regular; no murmurs; prominent and firm temporal and radial arteries; blood pressure (Tycos instrument) 145. Respiratory sounds not pathological; urinalysis revealed a diffuse nephritis; other abdominal viscera negative. There was a perineorhaphy scar, the uterus small and fixed by adhesions. The skin was sallow, presenting numerous moles, scars on the head and right arm, and the right ear badly mutilated as the result of the old injury.

The pupils reacted promptly to light, she did not coöperate in accommodation tests. Hearing in right ear greatly impaired, almost nil, apparently good in left. Integrity or extent of impairment of smell, taste and tactile sensibility could not be definitely determined for lack of coöperation, but she reacted rather promptly to painful stimuli. There was a rather general coarse tremor, particularly marked of the tongue and fingers. Elbow and wrist reflexes elicited, right K. J. plus, could not elicit left. No clonus; no Babinski; no cranial nerve palsies or any other paralyses; some swaying to Romberg.

The patient was very restless and markedly apprehensive. She did not seem to understand many of the questions asked her, repeating them over and over as though to grasp their meaning, or in a parrot-like manner. Occasionally she gave a prompt and pertinent reply to a question, but usually she employed indiscriminately the following phrases: "Sometimes I do, sometimes I don't," "I don't know, or "that depends." At one time in the course of the interview she said, with an air of great significance, "I comprehend lots of things I don't pretend to know." There was little play of the emotions in her facial expression, except that of terror, and on the whole she imparted the impression of considerable mental dulling.

Orientation was very imperfect. Although at the time of the interview she had been but a few hours in hospital she could not tell how long here, where she had come from, the day of the week or month. She could not give the commonest historical or geographical facts, nor tell how many children she had. Retention was also very poor. She recognized objects shown her and had no difficulty in imitating simple movements. She was entirely without insight into her condition.

For the two weeks following admission she slept poorly, ate but little and cried much of the time. There were periods when she was very noisy, during which she frequently left the bed to wander aimlessly about the ward. The apparent difficulty in comprehending what was said to her still persisted. She always repeated the questions and seldom added a pertinent reply. Spontaneous speech, however, was frequent, although for the most part incoherent and in which there was frequent mention of Arlington and of persons using her mind. She not only acted in a confused manner, but once or twice nodded assent to the question, are you confused? Although frequently confused she had not up to this time soiled the bed or her person with feces or urine.

In the early part of February, about six weeks after admission, she was worse. Although kept in bed she was constantly restless, disarranging the

bed clothing, or moving her limbs about in aimless manner. She would take but little food and strenuously resisted tube feeding. She was also very resistive to all attempts to do anything with her, the basis of which seemed a fear of all about her. She was even suspicious of the food. She no longer made any attempt to answer questions or to comply with requests, and frequently appeared confused. The content of spontaneous speech was becoming more and more jargonic in character. A Nogouchi test for syphilis was negative.

February 20, 1911, she was noticeably weaker. The heart's action was rapid and irregular and examination of the chest revealed a pleuritis and a developing right lobar pneumonia. She appeared very confused, babbled almost constantly in an unintelligible jargon and was very restless. The only time during a period of several days when she said anything which was intelligible was when the clergyman visited her, she said to him "get out." During the next three days the pneumonic process extended, and now for the first time in hospital she passed urine and feces involuntarily. The stools were diarrhoeic and there was almost constant dribbling of urine. There was swelling and redness of the knee joints and beginning decubitus. The tongue was dry and covered with sordes and she lay abed with mouth wide open, breathing laboredly.

February 24, 1911, death with symptoms of lobar pneumonia and cystitis. Autopsy 14 hours post-mortem.

Anatomical Diagnosis.—Congestion of dura, hernia of Pacchionian granulations through dura, congestion, oedema and regional proliferative leptomeningitis chronica, diffuse atrophy of cerebral gyri, small patch of atheroma in basilar artery, otherwise no macroscopic evidence of cerebral arteriosclerosis; brown atrophy of heart, atheromatous degen. of endothelium of ascending aorta; acute exudative pleuritis, right lobar pneumonia; hepatic congestion; chronic interstitial splenitis; gastritis, acute enteritis; diffuse nephritis, acute cystitis.

The brain weighed 1127 g., right cerebral hemisphere 497 g., left hemisphere 482 g., cerebellum, pons and medulla 156 g. The skull capacity as estimated by the method of Rosanoff and Wisemann was 1270 cc. The first temporal, transverse temporal and supramarginal gyri of the right side were smaller than the corresponding gyri of the left side. The rather diffused atrophy of the cerebrum is slightly more marked on the right side. The pial thickening and opacity is confined almost exclusively to the frontal and upper two thirds of the parietal convexity. On section of brain no gross focal lesions were found anywhere. The spinal pia exhibited many small osteomata distributed chiefly in the ventral portion of the thoracic area. The cord was of delicate proportions, slightly congested, otherwise no gross lesions.

Histological Description.—The microscopical examination of the trunk organs is confirmatory of the anatomical diagnosis of the protocol, a detailed description of which does not seem necessary. The histological alterations of the brain we limit to what seem to us the most important features.

The cortical histological alterations are essentially those which characterize a severe form of senile dementia, ganglion cell atrophies—in some instances with superimposed acute changes—rich lipid deposits in ganglion and glia cells, fine-fibred glia proliferations and cellular gliosis, progressive-regressive changes in the vascular apparatus, so-called senile plaques, and the like. In addition to these changes, particularly in left occipital convexity, are certain small areas suggestive of the areas found in senile cortical devastation. The parts so affected are frequently of irregular outline and commonly found at the bottom of sulci, although also seen in the lateral and summit portions of gyri. These areas are not always coextant with the triangular or wedge-shaped areas of cortical vascularization, but always within and surrounding them are large glia cells (Fig. 3). There is not, however, any especial fibrillary gliosis. Indeed, by the special glia methods glia fibers are scant within these foci, the whole picture by practically all methods employed imparts the impression of a comparatively recent process. The large pale cells seen in the devastated area (Fig. 3) are glia cells.

In contradistinction to the comparative absence of macroscopic evidence of cerebral arteriosclerosis in the larger vessels of the brain the microscopic examination reveals alterations in the smaller vessels of the cortex and marrow which are usually interpreted as arteriosclerotic changes, such as proliferative changes in endothelium, splitting of the elastica, regressive alterations of proliferated elements, a few instances of hyaline alteration of the vessel wall, the arteriofibrosis of Friedmann⁸ which Simchowicz⁹ and one of us,⁷ separately, have illustrated in recent publications, vessel budding and so-called packet (*Pakete*) formations. The calcareous degeneration of small vessels which Lafora¹⁰ and Jansens¹¹ report as present in their cases we did not find in this case.

The Alzheimer degeneration of intracellular neurofibrils (basket-like ganglion cells in neurofibril preparations) was not exhibited by a single ganglion cell, numerous areas of the cortex, basal ganglia, pons, medulla, cerebellum and spinal-cord were examined, more than 300 sections prepared after the Bielschowsky, Levaditi silver impregnation for *trepinoma pallidum*¹² and the Mann methods being employed. In this respect, then, the case is like Alzheimer's second reported case,⁴ but there the likeness ceases, in so far as the chief characteristics of neurofibril preparations of this group of cases (plaques and basket cells) are concerned, but like all other cases in the main histopathological alterations.

* We have found this method useful for the demonstration of plaques and can confirm A. Hauptmann's statement, *Zeitschr. f. d. ges. Neurol. u. Psych.*, Bd. 9, S. 239, 1912, that more plaques are exhibited by this method than by the Bielschowsky method, and is recommended where plaques are scantily shown by other methods. For finer plaque details, however, we prefer the Bielschowsky method, and Mann's eosin methyleneblue staining as recommended by Alzheimer.

Senile plaques though present were neither large nor numerous in any of the regions examined, not even in the prefrontal areas and hippocampal gyri (Fig. 1) where generally these structures are the most numerous and the largest, although in the right hippocampal gyrus, T₁ rt., particularly in the portion of the latter forming a part of Campbell's audito-sensory area,¹⁰ they were more frequently encountered. Next to these areas, the prefrontal regions of both sides and the right supramarginal furnished the greater number. No plaques were found in the central gyri, basal ganglia, pons, medulla, spinal cord and cerebellum. In the cerebellum, however, particularly in sections prepared after the Levaditi method, many amyloid bodies with fibrillary proliferations about the periphery were shown. A similar condition was also reported for the first Westborough case of Alzheimer's disease.^{1*}

Although one of us has elsewhere shown⁷ that the distribution of plaques is generally diffuse in character with accentuation where general histological alterations are greatest, it is not clear to our minds why the cerebellum and spinal cord should exhibit a comparative immunity. We have instances on record at Westborough of plaques in medulla, but none in the cord, even in those cases which showed them in the medulla. A feature of the plaques in this case to which we would call attention is the absence of the large centrally located nuclear-like body. Instead there is a collection of smaller homogeneous masses, imbedded, as it were, in a matrix of rather thick fibrils, some straight, others curled, the whole suggesting a conglomerate (Fig. 2). The exceptions are the very small plaques which Fischer¹¹ designates as *Morgensternchen*. Indeed the larger plaques not infrequently seemed to have resulted from a number of these little star-like structures arising simultaneously within a small area.

All of the plaques encountered in this case we consider as young varieties, in so far as one is justified in determining this from the character of the glial reactions in their vicinity. The fibril components of these plaques we judge to be chiefly neurofibril proliferations. In glia preparations we were unable to demonstrate glia fibrils within the plaques, but of course we recognize that that in itself would not exclude their presence in Weigert preparations. The Mann sections were also negative for a fibrillary gliosis.

The rather peculiar reaction in Herxheimer's scarlet stained sections—fine red stippling of the entire plaque—which Alzheimer described in his second case and which was also found in the first Westborough case was not demonstrated in the present case.

* It may be well in this connection to call attention to recently published views of Alzheimer and of Bielschowsky concerning amyloid bodies. These observers point out the similarity of chemical makeup and the probability of a common origin from degenerating nervous elements. At any rate, one seems justified in deducing from their statements that they argue a similarity if not a like origin for plaques and amyloid bodies, structures so common in brains undergoing senile involution.

The above are the essential clinical and anatomical data of this case.

Now how shall we group the case here reported and the other reported cases of so-called Alzheimer's disease; is all the data sufficient to warrant a new clinical group, or is it better to interpret them as representative of a phase of senile dementia, a precocious senile dementia, or if you will, an atypical senile dementia? At all events, if we take the ground that these cases fit best into the senile dementia group, it will be conceded that they are not of the sort commonly designated as "simple senile dementia," for their clinical histories and anatomical findings best comport with the severer forms of senile dementia. If, then, these are cases of atypical senile dementia, the question could fittingly arise why a special clinical designation—Alzheimer's disease—since after all, they are but part of a general disorder. Still the profession must remain indebted to Alzheimer for having first called attention to this type of cases. He himself does not claim a distinct clinical entity for the group, for in the discussion of his second reported case¹ he states as his conviction that since there were many points of contact, to say nothing of similarities between this group and senile dementia, there was no good ground for supposing a special pathognomonic process; that the cases were representative of a senile psychosis—atypical senile dementia—a view which is shared by Bielschowsky,² Lafora,³ Janssens⁴ and the writers.

Barrett,⁵ in the report of a group of cases among which was included a case of the type under consideration, although not reported as such at the time, considered that plaques in combination with basket-like degenerations of ganglion cells, together with certain focal atrophies of the brain which his cases presented, offered "explanations of a special clinical group of senile psychoses." So that here also we have a case reckoned with the general mental disorders of senium.

Schnitzler's case,⁶ at first sight, is disconcerting, for it is difficult to conceive a senile dementia in a person of 32. Nevertheless, Schnitzler groups his case with the type of which Spielmeyer writes as, "cases of senile dementia which differ from the usual type in that a marked dementia rapidly ensues, together with focal symptoms of asymbolic and aphasic character." He also shows an inclination to flirt with the rather fascinating idea of an

origin from disordered internal secretions (ductless glands), since his case and one of the cases reported by Perusini³ exhibited certain myxœdematous symptoms.

It is seen that all observers who have reported cases of Alzheimer's disease consider them as belonging to the senile group, although in most instances of precocious onset. We then, it appears, have to deal with an atypical form of senile dementia. But what are we to understand by senility in an anatomical or psychiatric sense? * Anatomically we are as yet unable to draw a line with any degree of precision between the brains of some so-called normal elderly persons and certain senile demented. Still while definite anatomical criteria may be lacking, in so far as concerns senile dementia, on the psychical side the lines are, perhaps, better demarcated. It is recognized that general dulling, memory weakening, disturbances of retention, impairment of judgment, lessened initiative, inability to concentrate the attention on matters formerly of interest and a weakening of the normal affectivity are hall marks, so to speak, of senile mental disorder in general. The lessened interest and the more or less profound disturbances of retention which accompany the dementia of senile insanities serve in a great measure to differentiate them from the inherited or other defect-psychoses. Nowadays one would hesitate to say that "a man is as old as his arteries," for the mental disorders of senium and arteriosclerosis are well defined, although often found in combination. One also hesitates, in spite of the intensive manner in which our knowledge concerning plaques has been recently cultivated, to reduce senile dementia to terms of plaques. The case of Schnitzler, admitting that is an example of an atypical senile psychosis, the two cases of circumscribed senile atrophies of Alzheimer,⁴ the case here reported with but few plaques, the recently reported group of Westborough cases which coursed clinically as senile dementia, yet anatomically presented no plaques,⁵ all give pause.

The case which forms the subject of this paper is, in our opinion, an example of the group now designated as Alzheimer's disease, although varying somewhat from the first Westborough case

* Whether senium is a normal or pathological process has been the subject of much discussion which leaves the problem far from solution.

and other reported cases. The antecedent ill health and mental stress, the mode of onset with apprehension and depression, periods of mental confusion and active hallucinations, followed by a short period of remission were such as to suggest several possibilities. Among the possible psychoses considered were the infective-exhaustive group, manic-depressive insanity, Kraepelin's melancholia—now in disrepute in certain high quarters—and arteriosclerotic insanity. Although general paresis or cerebral lues was not seriously considered, a Nogouchi test of the blood was made. This proved negative. Soon, however, the marked disturbance of memory and retention, the aphasic disorders of a sensory character, the periods of confusion, restlessness and motor productivity, together with the earlier epileptiform convulsions without motor residuals, aroused the suspicion of a possible case of Alzheimer's disease, which we believe the subsequent course and anatomical findings as a whole justify us in maintaining.

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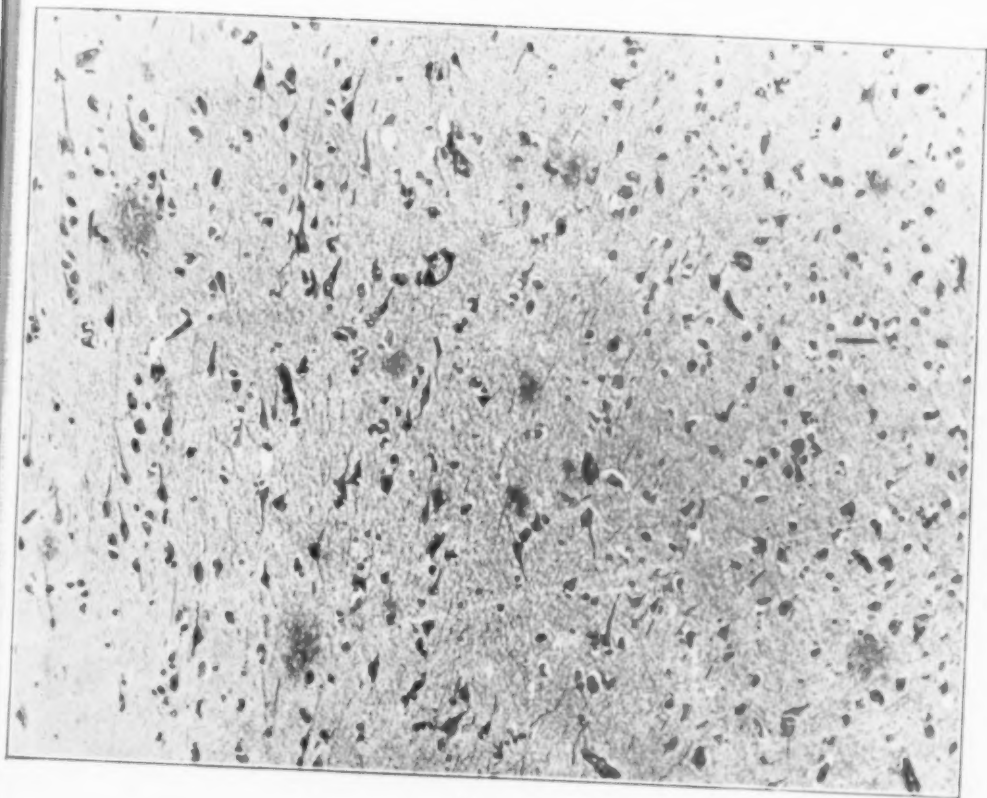


FIG. 1.

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MUSEUM OF
ART AND
ARCHAEOLOGY
OF THE
UNIVERSITY OF
CAMBRIDGE

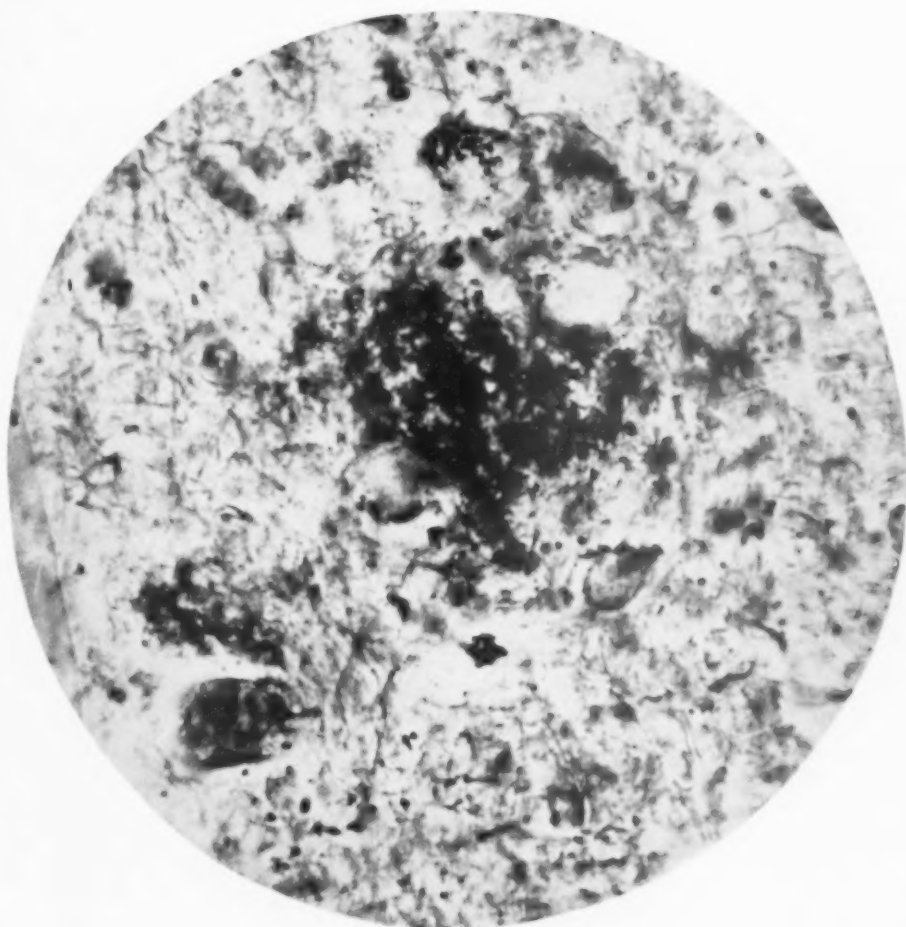


FIG. 2.

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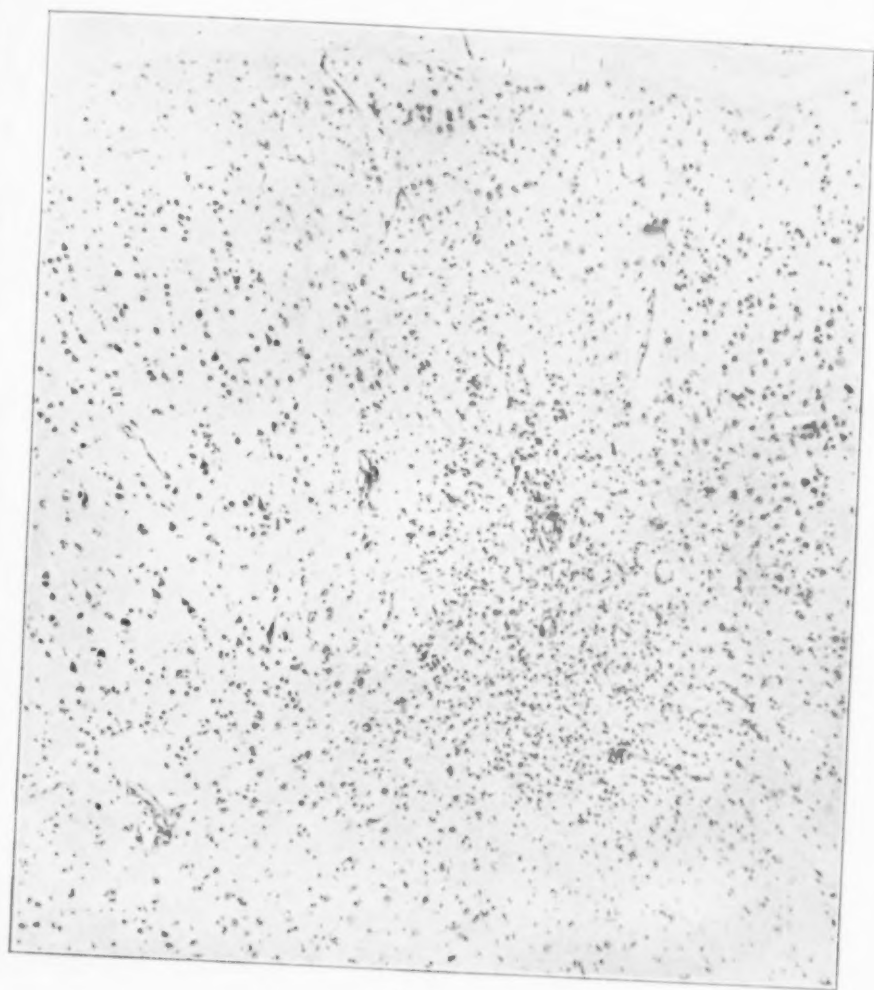


FIG. 3.

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EXPLANATION OF PLATES.

- FIG. 1.—Hippocampal gyrus rt. Levaditi method for *Trepanoma pallidum* as recommended by Hauptmann for plaques. This photograph shows as rich a field as found anywhere in the numerous sections examined. Bausch & Lomb $\frac{3}{4}$ achromat. obj., Zeiss projection oc. No. 2, bellows extension 84 cm.
- FIG. 2.—T₁ rt. Bielschowsky silver impregnation. Large plaque suggestive of the conglomerate described in text, and several smaller plaques, latter not in good focus. Zeiss 2 mm. apochromat. obj., projection oc. No. 2, bellows extension 90 cm.
- FIG. 3.—Left occipital convexity. Area not unlike senile cortical devastation. Toluidin blue, after Nissl. Zeiss AA. achromat. obj., no ocular, bellows extension 1 m. 65 cm.

SOME PROBLEMS IN THE STUDY OF HEREDITY IN MENTAL DISEASES.* †

By HENRY A. COTTON, M. D.,

Medical Director, New Jersey State Hospital, at Trenton.

Without doubt, from the standpoint of prophylaxis, at least, the most important aspect of psychiatry has always been the factor of heredity. It has been known for years, in a general way, that heredity has played an important rôle in the etiology of the psychoses, but we have been very far from having any definite knowledge of the subject. We have, until quite recently, been satisfied with vague opinions regarding "insanity in the family," of those mentally affected, without due regard to the nature of the malady in other members of the family.

The records of the patients in insane hospitals, even in those hospitals pretending to do modern scientific work, are woefully incomplete, inadequate and often inaccurate. In the older methods of examination the statistical data regarding heredity, as well as etiology in general, was based upon the statements of the committing physician. No attempt was made to inquire systematically into these questions, and every one knows how unreliable such statements received must have been. Even with modern methods, but very little progress was shown, as the source of information from the families of patients was also limited. The most conscientious work of the assistant physicians would fail to bring out all the important factors of heredity. Often the husband or wife of a patient was the only one who came to visit the patient, and usually they knew very little of the family history of each other. Hence, statistics made up from such sources, while much more

* Elaboration of a paper read by title at the sixty-seventh annual meeting of the American Medico-Psychological Association, Denver, Colo., June 19-22, 1911.

† This paper forms contribution number one of the Worcester State Hospital (Mass.), Series of 1912, offered in compliment to Dr. Hosea Mason Quinby on the event of his retirement from the Superintendency after 20 years of service.

accurate and complete than statistics collected as above, at the same time the best obtainable by this method were open to serious and just criticism.

We have been content until quite recently with the loose methods of investigating this important subject, and the fact that insanity occurred in the family in such and such a proportion of our patients was considered enough for our present knowledge.

It is usual to see in statistics of insane hospitals a summary of the number of cases in which heredity was a factor, such heredity being merely insanity in the family. We have been aware that certain forms of insanity exhibited more heredity than others. But we have had no accurate knowledge of the nature and type of mental disease in ancestors and immediate families of our patients. We must all plead guilty to our lack of interest in this subject, and we must acknowledge our indebtedness to one outside of our work who has succeeded in arousing our interest and stimulating our endeavors in this field.

Prof. Charles B. Davenport, of the Eugenics Section of the American Breeders' Association, and in charge of the Eugenics Record Office at Cold Spring Harbor, has been the one to stimulate our interest in this field.

In this office, in which Prof. H. H. Laughlin has been associated with Prof. Davenport, the modern ideas of the study of heredity had its birth. The office has been in existence less than three years, but has already accomplished a great deal, and through this agency many state hospitals, as well as other institutions for the care of epileptics and the feeble-minded, have been supplied with competent and well-trained field workers, who are now engaged in vigorously attacking the problem in a score of centers. The workers have been prepared by means of a summer school, which lasts six weeks. During this time systematic instruction is given in collecting data in the field, tabulating such data, and in making heredity charts. The workers are usually chosen from among college graduates, and those having some experience in social service work, preferably women.

It is with some pride that we note that New Jersey has been the pioneer in this special line of work. The first systematic study of the question of heredity in the feeble-minded was the work of Prof. Johnstone and Dr. Goddard, of the Training School, at Vineland,

and Dr. Weeks, of the Epileptic Village, at Skillman, has contributed the first important contribution based upon systematic field work on the question of heredity in this class of patients.

Dr. Everett Flood, of the Epileptic Colony, at Monson, Mass., has also done valuable work in this field. These can be said to have been pioneers in this work.

The King's Park State Hospital, in the State of New York, was the first state hospital for the insane to employ field workers in connection with their study of heredity, but such work has not been continued. We believe the New Jersey State Hospital at Trenton was the first to organize a permanent department of "field work," with a special appropriation to carry on the work, in connection with systematic "after care" work, and has now two trained field workers. By combining the heredity work with the "after-care" work, we feel that a direct benefit comes to the patient, and that we can show results of a practical immediate character as well as results which might be unjustly termed of theoretical importance only.

LITERATURE.

Although Gregor Mendel published his discoveries of laws regarding heredity, which now bear his name, and are so well known, as early as 1866, it was not until 1900, when his work was rediscovered by De Vries and others, that the importance of his work in this field was recognized. It was mainly through the work of Bateson and other Englishmen that his work received the recognition in England and this country. Since 1900 many investigators have been occupied with the problems of heredity, especially in plant and animal life. To some extent the problems of human heredity have been investigated, and the science of eugenics has now grown to considerable proportions and found an important place in our studies of the human family.

But the relation between the science of eugenics and psychiatry has but recently been established, and the literature upon the subject is as yet extremely meagre, and, with one or two exceptions, is confined exclusively to this country. In only one other country can it be said that systematic study of heredity in insanity by means of field work has been established, and that is Germany. It is all the more surprising that this country, where so much

valuable research in psychiatry had been carried on, had neglected this phase of the subject, especially as Mendel was a German, and his work should have been familiar.

And up to the present only one investigator has been occupied in this field in Germany, Dr. E. Rüdin, Oberartz of the Royal Psychiatric Klinik in Munich, under the direction of Prof. Kraepelin. His work is decidedly a most important contribution to the subject. His work is of such importance to the study of heredity in mental diseases that it is worth our while to review it more in detail, which will be done later. Since 1909, Rüdin has been Oberartz of the Psychiatric Klinik at Munich, and during this period he has personally collected material for the study of the complex problems of this question. (This valuable contribution of his is published in the *Zeitschrift für Gesamte Neurologie und Psychiatrie*, Seventh Vol., 5th Part, Nov. 18, 1911.)

What makes the work of Rüdin so remarkable and noteworthy is the fact that he has done field work personally, and at his own expense. He gives up his position at the clinic for several months each year and goes into the field to collect this data. He has copies of the rosters of all the Bavarian institutions, and is able to get fairly good records of the patients who were in these institutions, although patients were committed a great many years ago. The fact that he has access to accurate records is a great advantage, especially in case of preceding generations.

From the majority of records of the hospitals in this country, even up to within a short time ago, it would be impossible to make any sort of a diagnosis of the patients admitted to them. In some cases one can get more accurate information upon which to base a diagnosis from the description of the cases who never come into the hospital than in patients who are admitted.

Another fact of importance connected with Rüdin's work is that he does his field work himself, and, consequently, is able to get better descriptions, to observe, and to "size up" the members of the family and classify them accordingly. Without financial assistance, and against difficulties which would seem insurmountable to us, he has achieved some wonderful results. He has accurate family histories in a great number of cases, representing various types of mental disease. Although he has so much material at his disposal, he feels that he has not done enough work to

justify any general statements or formulation of laws regarding the heredity factors of insanity.

The Eugenics Record Office has issued bulletins from time to time, based upon the work done by their field workers in various institutions.

The first bulletin is on "The Heredity of Feeble-mindedness," by H. H. Goddard, Ph. D., of the Training School, at Vineland, and is an extremely interesting and valuable contribution to the subject. Fifteen charts are shown. While it is a preliminary report of the work being done at Vineland, it is well worth reading by those interested.

Bulletin No. II, from the same office, is a compilation by Dr. Davenport, Prof. H. H. Laughlin, Dr. Weeks, Prof. Johnstone and Dr. Goddard, on the "Study of Human Heredity," and methods of collecting, charting and analyzing data. It has been the object of those interested in this subject to have a uniform method of charting which could be adopted by all institutions, so that the various institutions would understand, without difficulty, the work that is being done in other institutions.

Bulletin III is by Gertrude L. Cannon and A. J. Rosanoff, M. D., of the King's Park State Hospital, and is a preliminary report of the work done at the King's Park State Hospital, New York. This work is principally an outline of the methods used, and a brief description of the Mendelian laws.

The fourth bulletin, by Drs. Weeks and Davenport, is the result of systematic field work at the Epileptic Village, and is a valuable contribution to the inheritance of epilepsy. The authors give the following conclusions as the result of their work:

1. The method of field-study of epileptic families combined with the modern biological methods of analysis of hereditary data constitute a vastly improved means of inquiry into inheritance of epilepsy.
2. Epilepsy and feeble-mindedness show a great similarity of behavior in heredity, supporting the hypothesis that such is due to the absence of a protoplasmic factor, that determines complete nervous development.
3. When both parents are either epileptic or feeble-minded, all their offspring are so likewise.
4. The conditions, named migraine, chorea, paralysis, and extreme nervousness, behave as though due to a simplex condition of the protoplasmic factor that conditions complete nervous development; *i. e.*, persons belong-

ing to these classes usually carry some wholly defective germ cells. Such persons may be called "tainted."

5. When such a tainted individual is mated to a defective, about one-half of the offspring are defective.

6. When a simplex normal is mated with a defective, about half the offspring are normal; the others defective or neurotic.

7. When both parents are simplex in nervous development and "tainted," about one-quarter (actually 30 per cent) are defective.

8. The proportion of tainted offspring is not noticeably higher when both parents show the same nervous defect.

9. Normal parents that have epileptic offspring usually show gross nervous defect in their close relatives.

10. While we recognize that "epilepsy" is a complex, yet there is a classical type numerically so preponderant that, in the mass, "epilepsy" acts like a unit defect.

11. Our data point to a poisoning in slight degree of germ cells by alcohol, but the evidence is hardly crucial.

12. There is evidence that in epileptic strains the proportions of epileptic children in the latest complete generation is double that of the preceding; but there is no evidence that in these epileptic strains the average number of children in a fraternity is greater than in the population at large. Provided matings continue as at present, and no additional restraint is imposed, the proportion of epileptics in New Jersey would double every thirty years.

13. The most effective mode of preventing the increase of epileptics that society would probably countenance is the segregation during the reproductive period of all epileptics.

Dr. Rosanoff and Florence I. Orr, B. S., are the authors of Bulletin No. V, entitled, "The Study of Heredity in Insanity in the Light of the Mendelian Theory." The conclusions of the authors are based upon the investigation of about 73 cases, and the heredity charts in these cases are reproduced. This represents 206 different matings, total, 1097 offspring. A table is given, showing the proportion of normal and neuropathic offspring, which resulted from various types of matings, compared to the theoretical expectations according to the Mendelian theory. The authors have considered that the neuropathic constitution, in reality, consists of a series of units, which are distinct, at least from the standpoint of clinical definition, though at the same time in manner related to each other. One is forced to emphasize here the fact that it is necessary to keep an open mind in regard to these problems. In other words, that we must investigate the facts of the heredity of psychoses as they exist, and not to be too

prejudiced towards the Mendelian laws. Following are the conclusions given by the above authors:

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait, which is, in the Mendelian sense, recessive to the normal condition. Rules of theoretical expectation are accordingly as follows:

a. Both parents being neuropathic, all children will be neuropathic.

b. One parent being normal, but with the neuropathic taint from one grandparent, and the other parent being neuropathic, half the children will be neuropathic and half will be normal, but capable of transmitting the neuropathic make-up to the progeny.

c. One parent being normal and of pure normal ancestry and the other parent being neuropathic, all the children will be normal, but capable of transmitting the neuropathic make-up to their progeny.

d. Both parents being normal, but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal, but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

e. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal, half of them will be capable, and half not capable of transmitting the neuropathic make-up to their progeny.

f. Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny.

2. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

3. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness, varying in their clinical manifestations with the personality of the subject, environmental conditions, etc.

4. All the neuropathic children, which result from a mating of the fourth type (both parents normal, but each with the neuropathic taint from one grandparent), can have, theoretically, only equivalent defects and not defects of different degrees of recessiveness.

5. Among the actual results from such matings the following have been met with:

a. Brothers and sisters suffering from clinically identical neuropathic manifestations.

b. Psychosis in one subject and peculiar or abnormal disposition, but no actual psychosis in brothers and sisters.

c. Psychosis in one subject and isolated, but clinically related symptoms in brothers or sisters; we find with particular frequency dementia præcox—fainting spells or convulsions in childhood.

d. Psychoses clinically not known to be related; senile deterioration—peculiar hysteriform psychoses.

6. Neuropathic conditions show only in about one-fourth of the cases indications for commitment to sanitariums or public institutions. The total incidence or neuropathic conditions may be roughly estimated as affecting between 1.5 and 2 per cent of the general population.

7. It is further estimated that about 30 per cent of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors and are capable under certain conditions of transmitting the neuropathic make-up to their progeny.

The methods of assuming facts, when they do not exist, is open to just criticism, and the fact that it was necessary for the authors to assume the fact of the simplex inheritance in places where information was not available, is open to criticism. It is true that these cases where the simplex inheritance is dissimilar has been treated separately and distinct from the other material. It is self-evident that the question of human inheritance presents many difficult problems, and there will be many cases that apparently do not follow any given law. The lack of matings and the absence of children in many families, or the usual "two-children" families, offers serious difficulties in making out definite laws regarding inheritance.

To some extent feeble-mindedness can be considered a unit, but here one is forced to recognize the fact that imbecility itself is far from being a unit, and may be caused by entirely different factors. The grades of feeble-mindedness, as outlined by Goddard, viz.: highest types, morons, next grade, feeble-mindedness, and then imbecility and idiocy, are practical for a clinical classification, but from the standpoint of etiology these types may not be so distinct, and there certainly can be a distinct difference between the members of any one class. No one will deny that in feeble-mindedness we have the purest form of inheritance, and that feeble-minded parents, as found by Dr. Goddard, will certainly produce feeble-minded children. At the same time, a no small number of cases of feeble-mindedness may be the result of external causes, and not altogether due to heredity features. Infectious diseases in child-

hood, especially scarlet fever, and perhaps other fevers, cause feeble-mindedness, both directly and indirectly, by arresting development through the direct action upon the cerebral tissues, and indirectly produce arrested development through deafness and other disturbance of the sensory organs.

When discussing the cause of epilepsy, one has to be especially careful not to consider this disease as a unit, a fact recognized by Weeks and Davenport. It is far better to consider the group as "the epilepsies" rather than to consider the disease as a unit. So it is even necessary, in discussing the inheritance of these simple forms of disease, to be guarded in not considering them entirely as units. At the same time, we recognize the fact that inheritance plays an important part in the production of feeble-mindedness and "the epilepsies" and that the laws concerning same will be much simpler than the laws regarding other psychoses. In fact, we are forced to consider that these two diseases are subdivisions of insanity as such, and for this reason one readily sees the error in considering insanity as a unit or uniform disease.

F. W. Mott (*Brain*, Part 2-3, Vol. XXXIV, Nov., 1911), "Inborn Factors of Nervous and Mental Diseases," discusses the question of inheritance in general, and in particular the hereditary features of insanity. He discusses at length the laws of Galton, and is inclined to agree with his views, which laws, as we know, are opposed to those of Mendel. He also discusses the Mendelian principals at length, and gives a detailed explanation of these laws. He firmly believes in the law of sex limitation in certain types of diseases, such as color blindness and hæmophilia, and, in the field of nervous diseases, pseudohypertrophic paralysis. This form of inheritance is not only discontinued or interrupted for successive generations, but the disease is limited to one sex, although it is to be noted that the disease is transmitted by the sex in which it does not appear. Thus, it is the males who are affected in hereditary sex-limited diseases, and it is the females who transmit the disease. Mott also gives considerable space to "Nature and Nurture," and shows, conclusively, how in a great many conditions the environment and experience due to environment may have a very important bearing on inheritance. Also that a neurotic tem-

perament may be manifested in many different ways by conduct and behavior, and this neurotic temperament may be the first evidence of any degeneration in the stock. It is well that he has emphasized this important fact, for these characteristics must be looked for in collecting data for pedigrees of the insane, as it has been found that they are of as much importance as the pure mental disease in the ancestors. It is true, as he states, "that unsound stock may have successful men in the eyes of the world, but these may really form the first step in the process of degeneration, for avarice and normal guile, which made them pillars of society, may come out in the next generation as gross criminality or insanity. Mott is of the opinion that inborn factors partly, if not wholly, can account for the appearance of insanity in the stock."

Of considerable interest is the discussion of the Law of Anticipation, which was defined by Nettleship as "a manifestation of the morbid change at an earlier period of life, either in members of each succeeding generation as a whole, or as successively born children of one parentage." He gives examples of the truth of such a law. His observation, "that there is a general tendency for insanity not to proceed beyond three generations, either because of regression to the normal, or from the fact that the stock dies out," is important. But his explanation, that not infrequently the stock dies out through the inborn tendency of insanity manifesting itself in the form of congenital types, such as imbecility, or in the insanity of adolescence, is open to criticism, for it is not always true that children of insane parents are defectives. Types of insanity, of course, have to be considered, but even children of dementia præcox are frequently entirely normal, and the brothers and sisters of such patients may also be normal, although many of them appear to be peculiar. Mott gives some interesting statistical data regarding familial character of insanity, but here one is forced to call attention to the uselessness of such statistics, where insanity is considered as a unit. We call attention elsewhere to the necessity of considering various types separately, at least until we can establish some sort of relation between the various forms, especially as regards hereditary features. He gives statistics of 2246 individuals where one or more members of the family were inmates of an institution. This is all right as far as it goes, but

in our field work we frequently find evidences of mental disease in members of the family where these individuals have never been inmates of an institution. Especially is this true in early generations, where a very small percentage of those who were insane have been committed to a hospital. So that, to be accurate, one must consider these cases as well as members of the family who have been in institutions. It is also important to note that statistics based on hospital admissions alone would not truthfully represent the facts.

Mott gives the conclusions of Dr. Edward Shuster, who made the study of inheritance of the same types of insanity in 1910. They are as follows:

1. A periodically insane son or daughter is more likely to be associated with a periodically insane mother or father than if one is differently affected. In the case of two offspring in the insane there is even a greater tendency for a periodically insane male or female to be associated with a periodically insane brother or sister than with one differently affected.

2. In case of delusional insanity, the tendency for the affection to run in families is very strongly marked, and the correlation between members of the same co-fraternity is more strongly marked than between parents and offspring.

3. In the instance of primary dementia of adolescence, there is a strong correlation between members of the same co-fraternity. There is also a decided tendency indicated for the brothers and sisters of imbeciles to be also imbeciles.

4. There is no indication of general paralysis running in families. This is not surprising, as it is now recognized to be an acquired disease due to syphilitic infection. Both conclusions would seem to be justified from our knowledge at the present time. The chief criticism of Mott's work is that he has not gone carefully enough into the question, as he has practically taken only the cases which have been admitted to the institutions as a basis for his statistics, thus leaving out of consideration a large number of important individuals.

It is conclusively demonstrated in this country that only by the help of well-trained field workers can we expect to collect valuable data regarding this complex question, and, secondly, in considering the inheritance of insanity, he is inclined to treat the disease as a unit, rather than to closely differentiate the various types. We must first establish the same rules between the various types of psychoses before we can justly consider them similar or dissimilar as regards the form of inheritance. Mott's article, in all prob-

ability, represents the best work that has been done by the English in this field.

MENDELIAN LAWS IN RELATION TO INSANITY.

In recent literature we find explanations of the principles of heredity as formulated by Mendel, but the clearest exposition of the subject is found in the work of Rüdin.

We are acquainted with the facts that the total inheritance of an individual from his parents is certain human characteristics, each of which is inherited independently of all the rest, and the inheritance of any such character is believed to be dependent on the presence in the germ plasm of a substance called the determiner.

With reference to any given character the condition of an individual may be dominant or recessive: the character is dominant when, depending upon the presence of its determiner in the germ plasm, it is plainly manifest. It is recessive when, owing to the lack of its determiner in the germ plasm, it is not present in the individual under consideration.

The symbols D and R in the following table represent the dominant and recessive conditions. In other words, D stands for the presence of the determiner of the trait, and R stands for its absence.

The following formula for six types of matings and their resulting offspring:

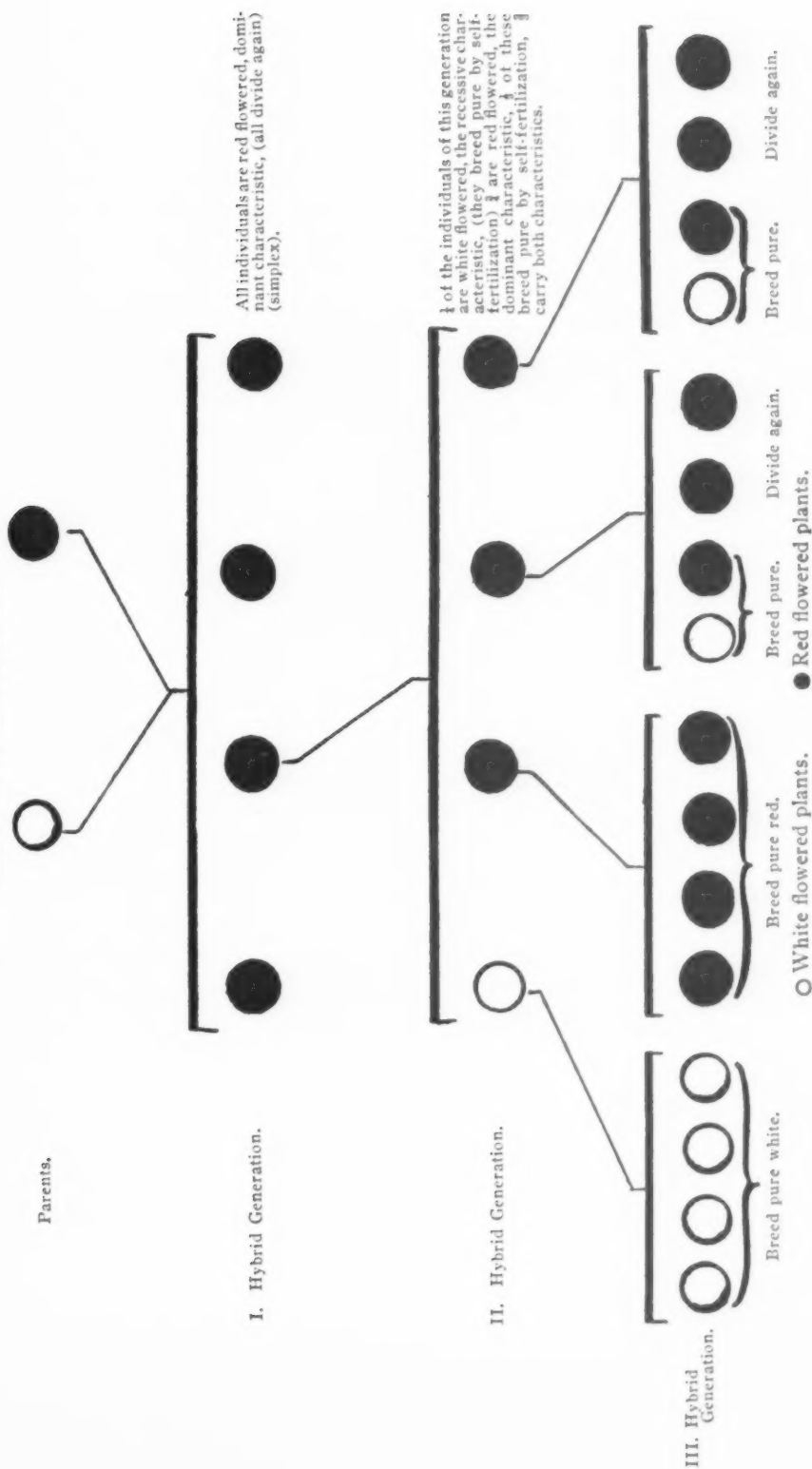
- Type 1. $(D+D)X(D+D)=4DD.$
- Type 2. $(D+D)X(D+R)=2DD+2DR.$
- Type 3. $(D+D)X(R+R)=4DR.$
- Type 4. $(D+R)X(D+R)=DD+2DR+RR.$
- Type 5. $(D+R)X(R+R)=2DR+2RR.$
- Type 6. $(R+R)X(R+R)=4RR.$

We speak of the inheritance of a character from both parents as duplex inheritance, designated by DD .

The case of inheritance of a character from one parent is spoken of as simplex inheritance, designated by the symbol DR .

In Fig. I, taken from Rüdin, we have exhibited diagrammatically the principles of the Mendelian prevalence and the rules of

FIG. I.
MENDELIAN PREVALENCE AND RULES OF DIVISION.
(Inheritance of the pea flower.)

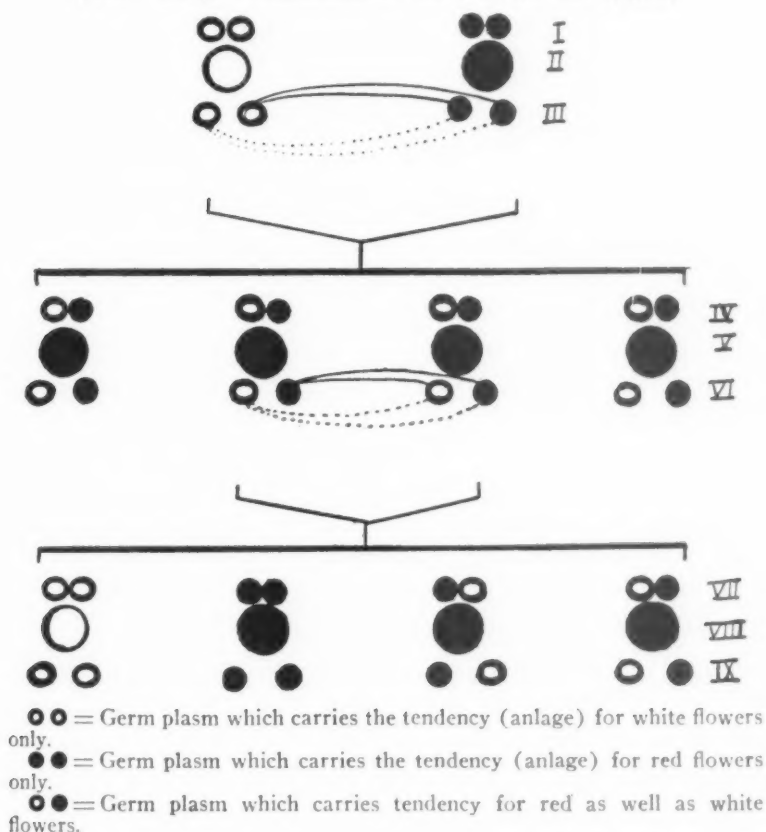


variance in the original experiment of the crossing of red and white peas. In the first hybrid generation we see that all individuals are red-flowered peas, although this generation contains also white-flowered characteristics, which are not manifest because the red is dominant. In the second hybrid generation we see the Mendelian proportions of one white to three red, in other words, one recessive and three dominant. In the third hybrid generation the white sweet pea breeds only white, one-third of the red peas breed pure red, while two-thirds of these red peas breed white and red in the proportion of one to three. This is the simplest explanation of this law. We see by this chart that the pure Mendel inheritance is not a mixed product composed of inherited characteristics, and these characteristics do not exist in a permanent combination, but always occur as separate unchanged characters in succeeding generations.

In Fig. II (after Rüdin), we see a diagrammatic explanation of this law of the regular appearance of the dominant and recessive characteristics. We see in Row I the germ plasm from which the parents develop. On the right the two black dots represent the homozygous gameten, because the germ plasm or the fertilized germ cells, gameten, has only one characteristic, that is, either for white or red. The germ plasm of these separate individuals, *i. e.*, the father and mother, are also considered as pure homozygous. By mating this pair, and following the lines in Row III, we will see there is an equal number of red and white gameten. In Row IV, which produces offspring shown as red in Row V, but, although this generation is red entirely, the gameten are not homozygous but heterozygous, that is, made up of both red and white characteristics, but because the red is dominant, the white characteristic does not appear. Now, by mating two of this generation, and noting the lines indicating combinations in Row VI, we see the reason for the proportions in the second hybrid generation. We have one white individual made up of homozygous gameten, one red homozygous and two heterozygous. Because of the red being dominant, the white characters do not show. Then in the germ plasm of these individuals we have the white producing pure white, and the red producing pure red, and the heterozygotes producing both white and red.

FIG. II. (AFTER RÜDIN.)

THE EXPERIMENTAL CROSSING OF THE RED AND WHITE FLOWERED PEA.
(The "anlage" combination of the Gametes and zygots.)



Row I. Germ plasm from which the parents are derived, they carry the one character. White or red, they are pure homozygous.

Row II. The two parents which result from the above germ plasms.

Row III. Pure, homozygous germ plasm which is produced by the parents.

Row IV. Result of the union of the unit characters from the parental germ plasm, heterozygous are combined germ plasms (simplex).

Row V. Here the tendency for red in the germ is dominant over the tendency for white. The flowers appear red, the first hybrid generation.

Row VI. The two characters, which are present in the heterozygous germ plasm and are derived from the parents, divide again, so that half of the germ cells bear the tendency (anlage) for white, the other half the tendency for red.

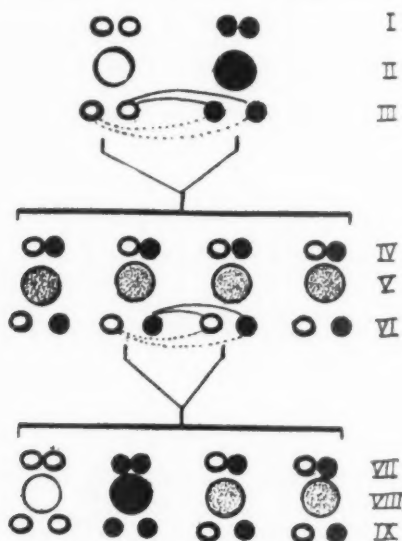
Row VII. The fourth combination of characters which occurs through the crossing of two hybrids of the first hybrid generation, two heterozygous and two homozygous.

Row VIII. Where the tendency for red is dominant over white, red flowered and white flowered individuals result from the four named germ plasms in the proportion of one to three.

Row IX. The above-named combination of germ plasms from the first hybrid generation will again divide. The one white individual, because it is produced from germ plasm with a tendency (anlage) for white only, produces germ cells with a tendency for white; one red individual with germ plasm with tendency for red only and two red individuals with both characters.

There is still another form of inheritance, which is shown in Fig. III, which is known as incomplete inheritance of the dominant characters or intermediate inheritance. This figure illustrates the mating of the red and white "wunder blume" or *maribilis jalappa*. By mating the red and white plant of this species we get in the

FIG. III. (AFTER RÜDIN.)
SCHEME OF MENDELIAN INHERITANCE OF THE INTERMEDIATE TYPE.



- ∞ Germ plasm, which carries the tendency (anlage) for white flowers only.
- Germ plasm, which carries the tendency (anlage) for red flowers only.
- Germ plasm, which carries the tendency for red flowers as well as for white flowers.
- White flowered individual.
- Red flowered individual.
- Pink flowered individual.

first not pure red or pure white or the prevalence of dominant characters, but the progeny shows a resulting mixture of red and white indicated by pink, but, as shown in Row IV, this progeny-colored pink is made up of heterozygous gameten, capable of producing both red and white. This is shown in the succeeding third generation, where we have one pure white individual, one pure red individual and two pink individuals. The white and red

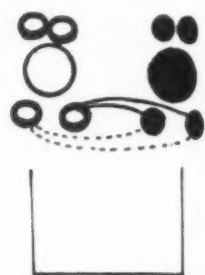
are homozygous, while the two pink plants are heterozygous, and this explains the fact that while the law of prevalence is an important factor of Mendelian heredity, at the same time the most important fact is that the antagonistic characteristic factors do not produce any permanent combination, but always occur as a separate unchanged character in succeeding generations.

So far we have spoken of the inheritance of dominant characteristics, and this rule holds good when this dominant characteristic is an abnormality.

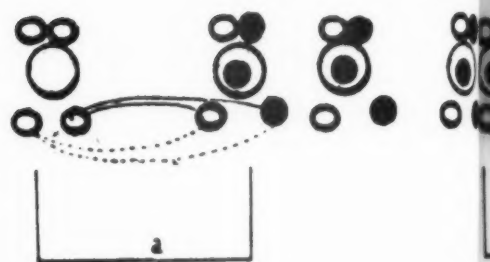
We are now to consider the laws of inheritance, where the abnormality is recessive. This is shown in Fig. IV. The recessive characteristics here are indicated by the black, hence are not to be confused with the other figures where the black indicates the dominant characters. Here there are six possibilities of a simple recessive Mendelian inheritance. In Row IV we see the result of the mating of a dominant homozygot with recessive heterozygot (Row I). All the individuals in Row IV are normal, notwithstanding the fact that they inherited a defect from one parent. This is illustrated by the white circle with the black dot. The abnormality is not apparent when, for example, the dominant normal mates with the dominant normal (in Row IV-a the dominant homozygot mates with a dominant heterozygot; Row VII-b, the dominant heterozygot mates with a dominant homozygot). There is a very important exception when the abnormality again comes to the surface, as seen in Row VII-c, where two dominant heterozygots mates with homozygots, in other words, two normal individuals with a duplex inheritance (normal and abnormal). Then we have one quarter of the progeny recessive homozygot, therefore abnormal in Row X-d. However, when recessive homozygot (abnormals) mates with dominant heterozygot (Row IV-e), then we have one-half of the progeny abnormal, and, finally, when two recessive abnormals, homozygots mate (Row VII-f) all the progeny will be abnormal (Row 10-g). When one of the parents is sick (abnormal), mated to a normal or normal mated to normal individuals, the progeny is normal children. They may also have abnormal children. Normal individuals from affected families will have normal progeny, the same as normal individuals from families without any inherited defect. We have these two phenomena, matings between normal individuals from

FIG. IV.
"ANLAGEN" COMBINATION

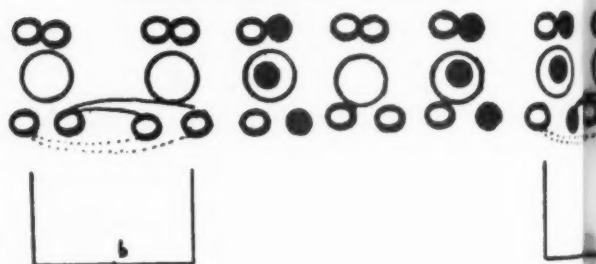
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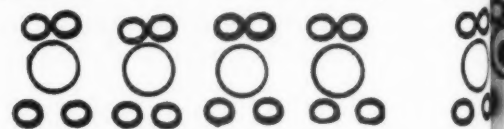
IV



VII

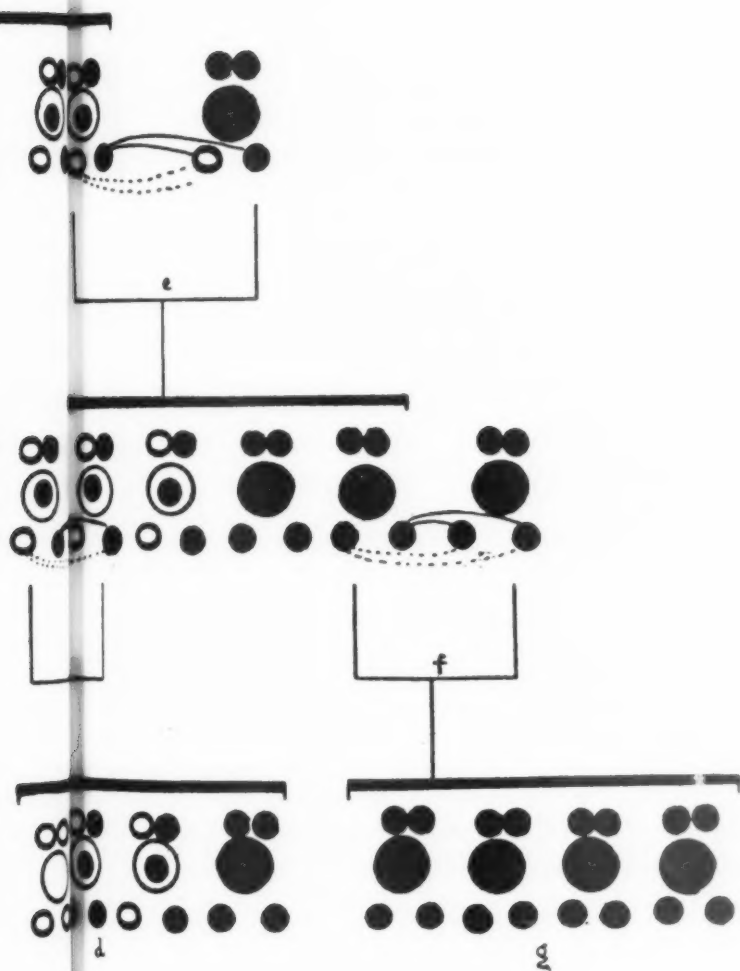


X



(G. IV. RÜDIN.)
 RECESSIVE ABNORMALITIES.

- Dominant characteristic, homozygot. Normal.
- ⊙ Dominant characteristic, heterozygot. Normal but with latent tendency toward abnormal.
- Recessive characteristic, homozygot. Abnormal.
- Dominant anlage.
- Recessive anlage.



families without hereditary taint will show all normal progeny. Where both parents are abnormal all the progeny will be abnormal.

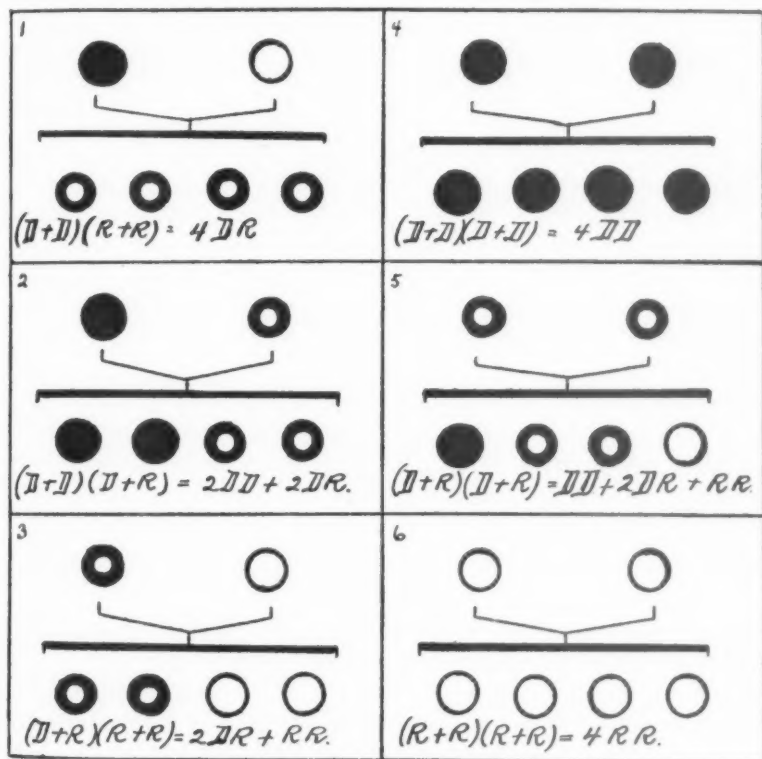
If we analyze the proportions in this chart, we will see that the apparent irregularity, with so-called exceptions, have a definite basis and follow definite rules. When two normal individuals have abnormal children, the proportion is one to four or two to eight, while parents who are normal and well, at the same time their germ plasm is not pure. Instead, the germ plasm is heterozygous. One or the other of the parents comes from ancestors, one of whom at a certain time was abnormal. When normal individuals have normal children, at least one parent has pure germ plasm, *i. e.*, homozygous, whose ancestors have never had any similar disease, or only through indirect ancestors, the grandparents or great-grandparents, or the collaterals, but never from the parents. In cases where an abnormal has normal progeny, the other parent must necessarily be homozygot (normal), and there is no tendency to abnormal. When an abnormal individual mates with a normal individual and have abnormal children, we find that the proportions of the abnormal to the normal will be as one to one, in other words, half of the children will be abnormal. In this case, however, the normal parent is heterozygot, normal.

Following Rüdin further in the discussion of this question on inheritance are given diagrammatic in Figs. V and VI, illustrating respectively the inheritance proportions, where abnormalities are dominant and where abnormalities are recessive. These diagrams give a better explanation of the proportions that are usually expressed by the formulas DD , DR and RR , which are given above.

Rüdin states that individuals with identical types of ancestors, which to all appearance, have identical characters, notwithstanding this, can have the combinations of gameten that are entirely different. Thus, in Fig. VI, in the square marked 5 and 6, the children have identical types of ancestors, but the children are not the same, and seven of the eight children who externally appear to be the same have entirely different combinations of germ plasms. The opposite also holds true that individuals can have identical gameten combinations and at the same time have quite different types of ancestors. In Fig. VI, square 2 and 3, we find quite a difference in inheritance where abnormality is dominant or recessive. In families where the abnormality is dominant there will

be a great many abnormal progeny, as shown in Fig. V, with 17 abnormal individuals, while in Fig. VI there are only seven abnormal individuals in the progeny, and particularly in each and every generation and in each and every family where one parent

FIG. V. (AFTER RÜDIN.)
INHERITANCE PROPORTIONS IN DOMINANT ABNORMAL.



● Abnormal, dominant homozygot. ◐ Abnormal, dominant heterozygot.
○ Normal, recessive, homozygot.

is abnormal; on the other hand, in families with the recessive Mendelian abnormality in much fewer individuals, and not in each and every generation and each and every family. This latter fact is of extreme importance, for an abnormality can skip two or even three or more generations.

Contrary to the rule in the dominant type of inheritance of an abnormality, we see in families, where abnormalities are of the recessive type, that external normal individuals are not always at the same time produced by normal germ plasm, for the external appearance of normality may cause errors to be made, and this rule is important when the question of marriage of relatives, cousins, etc. While they may appear absolutely normal, at the same time the tendency to abnormal characteristics may be present in the germ plasm of each individual, consequently, the children of such mating are much more liable to be defective through the inheritance of these latent abnormalities in the parents. Each and every normal individual from a family with a dominant abnormality is also of normal germ plasm. In normal individuals, from a family of recessive abnormalities, the same can also occur, but it is not absolutely necessary (Fig. VI, square 3). Through different associations of matings and pairing the resulting proportions through the experiments in animal and plant life, the homozygous and heterozygous elements have been produced and accurately settled. Each and every abnormal individual of a family with a recessive abnormality is consequently of abnormal germ plasm. On the other hand, abnormal individuals have a dominant abnormality when one of the parents is normal, possesses also an Anlage to normal. In cases of dominant abnormalities there is the danger only for the progeny of the abnormals, but for the normal progeny there is no further danger.

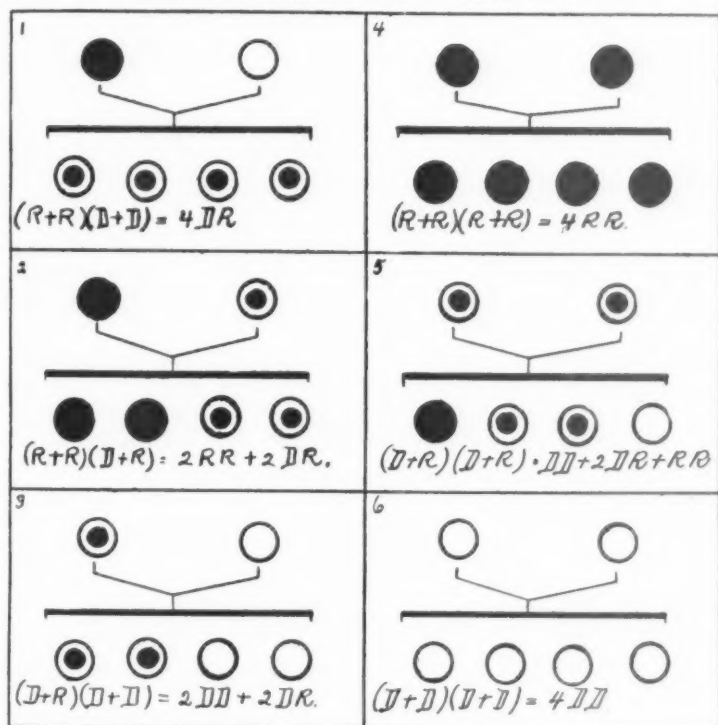
Rüdin gives us two main points from the standpoint of prophylaxis. 1. For families with inheritance of dominant abnormality, matings should be made only by normal members of a new stock, or with members of the same family. 2. In families with recessive abnormalities, matings can be made by all the individuals, but for the best results, certainly only the normal individuals, not only with new stock, but with the members of a normal new stock. These points that we have just spoken of can be said to be closely allied to the "mutation theory" of H. De Vries.

Rüdin discusses at length the Galton theory of inheritance of characteristics from ancestors, which views are utilized by Pearson, Darbishire and others, known as the Biometric School. Galton's law, concerning inheritance, is that a given person inherits one-half from the father and mother, from the grandparents one-

quarter, etc. That is, the given person is related one-half to the father and mother, and one-quarter to the grandparents, and one-sixteenth to the great grandparents. We have the following formula of the proportions of inheritance from the ancestors:

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots = 1.$$

FIG. VI. (AFTER RÜDIN.)
INHERITANCE PROPORTION IN RECESSIVE ABNORMAL.



● Abnormal, recessive homozygot.

⊙ Normal, heterozygot.

○ Normal, dominant homozygot.

Rüdin opposes this law of Galton, which has had such an effect upon the English school. He maintains that a given person does not inherit half from the father and mother, or one-quarter from the grandparents, but inherits distinct characteristics of the fathers or mothers or grandparents. In other words, from the Mendelian point of view, a person may inherit characteristics which make

him directly related to any one of his ancestors, or there may be no points of resemblance. Rüdín further discusses the complication which arises when one and the same abnormality is dominant for male members of a family, on the other hand, recessive for female members of the same family.

In Fig. VII is shown the well-known chart of Bateson, exhibiting the inheritance of color blindness. This peculiar form of inheritance occurs in other diseases, especially in hæmophilia. This form of inheritance was looked on as an exception to the Mendelian rule. By such charts analyzed closely, it is seen that they follow a fixed rule.

Rüdín gives, further, a large number of characteristics and traits in both the botanical and zoological fields. But of interest to us here are the characteristics often dominant in human individuals.

The Hapsburg lower lip in the male sex is almost exclusively dominant over the normal lips.

Single births dominant over twins and triplets.

Huntingdon's chorea dominant over normal.

Familial periodic paralysis over normal.

Porokeratosis over normal.

Night blindness over normal.

Progressive muscular atrophy over normal.

Hæmeturia over normal.

Ptosis familias over normal.

Normal dominant over amaurotic idiocy.

Many familial muscular diseases over normal.

Familial psoriasis and cerebella hereditary ataxia over normal.

Many forms of ichthosis palmaris over normal.

Normal dominates over albuminurea.

Brachydactyle or hyperphlange over normal.

A great many skin diseases dominant over normal.

Diabetes incipidis ever normal.

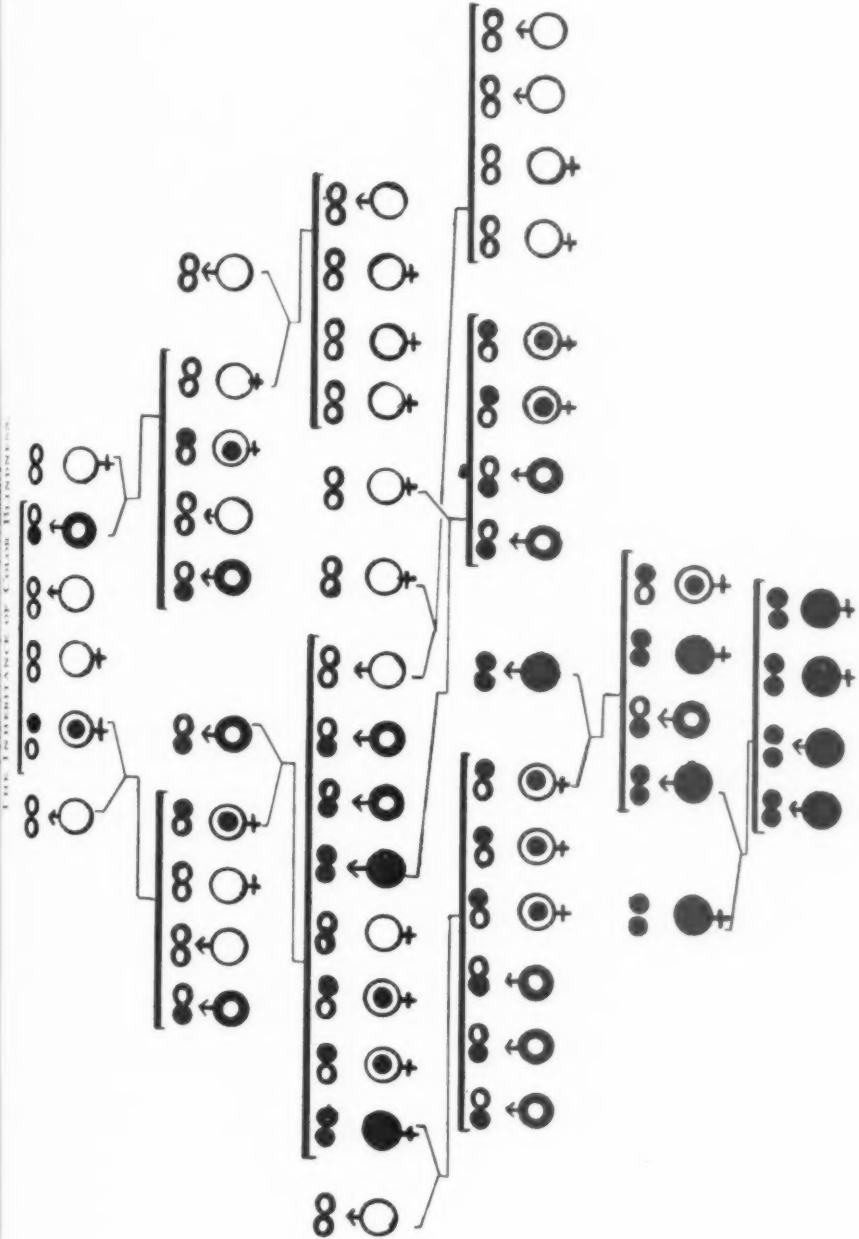
Some forms of glaucoma over normal.

Normal over retinis pigmentosa.

Color blindness in males over normal.

Hæmophilia in males over normal.

Pseudo-hypertrophic muscular paralysis (Gower's) over normal.



THE PROBLEMS IN PSYCHIATRY.

The problems relating to psychiatry will, therefore, be much more complex from our standpoint, for in a great many types external factors play a much more important rôle in the production of psychoses than the hereditary features. Especially is this true of the types which are due to the direct effect of toxins and poisons. Such is the case, for instance, in general paralysis, where we know to a certainty that the disease is not dependent upon heredity, but upon the effects of previous infection of syphilis. Delirious conditions, exhaustion psychoses, and, to some extent, manic-depressive insanity, might be produced by external factors which largely outweigh any effect of defective inheritance.

Among the problems met with by psychiatrists will be: 1st, study of direct inheritance of certain types. 2d, the effects upon the succeeding generations of the neuropathic constitutions as expressed by eccentricities, peculiarities, alcoholism, etc., in the parents. 3d, to what extent these factors are responsible for the occurrence of various types of psychoses in the progeny. 4th, the effect of the occurrence of certain types of psychoses in the ancestors upon the production of either similar or dissimilar types in the progeny.

Part of the work of the State Hospital, at Trenton, has been to collect as much accurate data as possible of the families and ancestors of patients coming under our care. It is a tremendous task to analyze this data, and often it is impossible to come to conclusions regarding the types of psychoses occurring in ancestors where we have only the description handed down from generation to generation. One has to be extremely careful not to be biased and make the cases fit certain laws. None the less, the value of such work is apparent when we consider the marked difference in the number of individuals about whom we now obtain information to the work previously done without the assistance of field workers.

While field workers are not trained psychiatrists, at the same time, we endeavor to have them attend the staff meetings whenever they are not in the field, to get some general idea of symptoms and diagnoses. In this way they become familiar with some of the important symptoms to be looked for, the age of the onset and whether individuals recover from their disease or become chronic,

FIG. VIII.
INHERITANCE

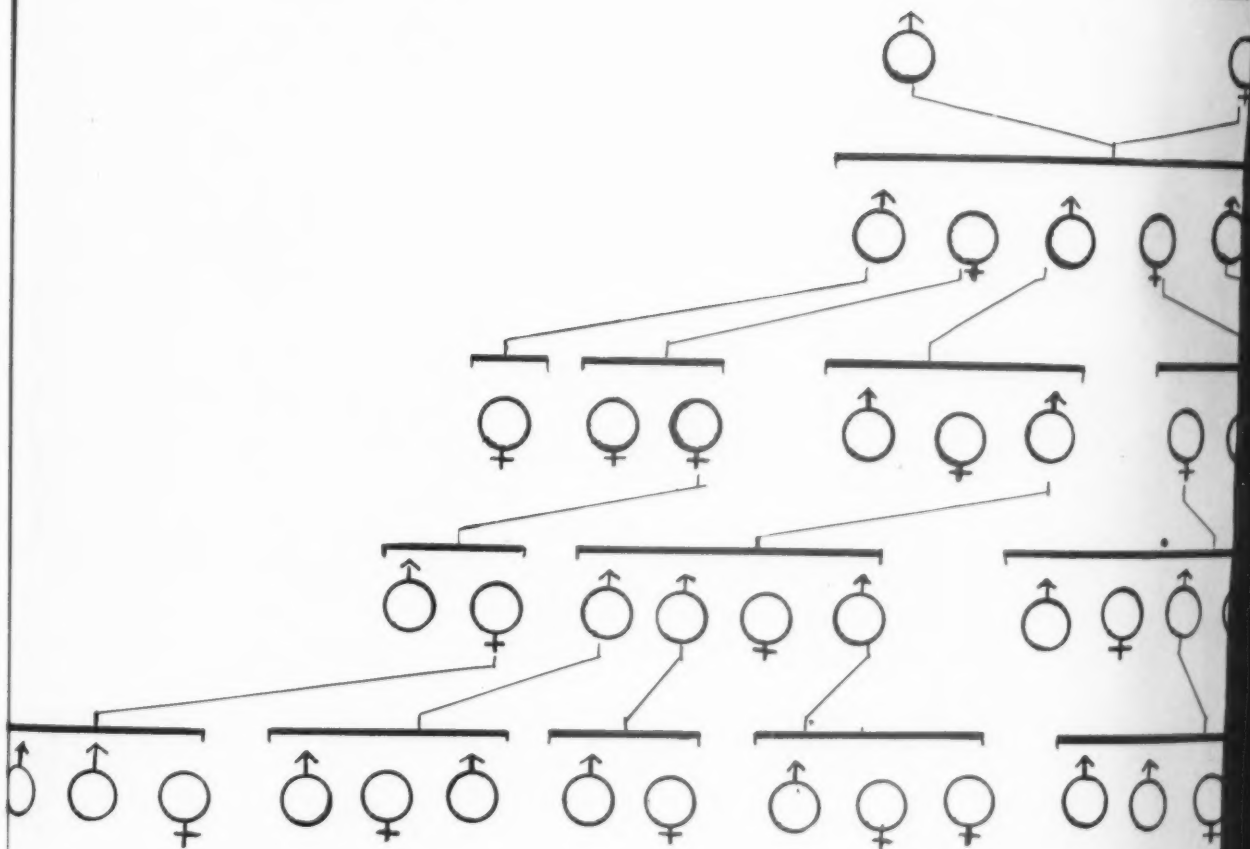
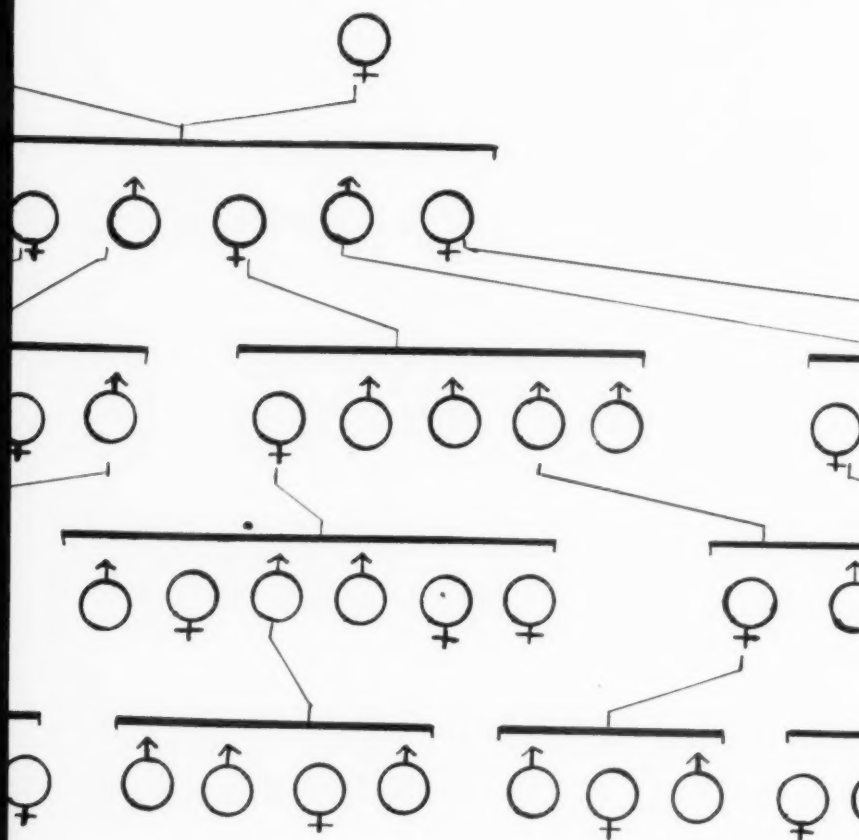


FIG. VIII. (AFTER RÜDIN.)
INHERITANCE CHART.



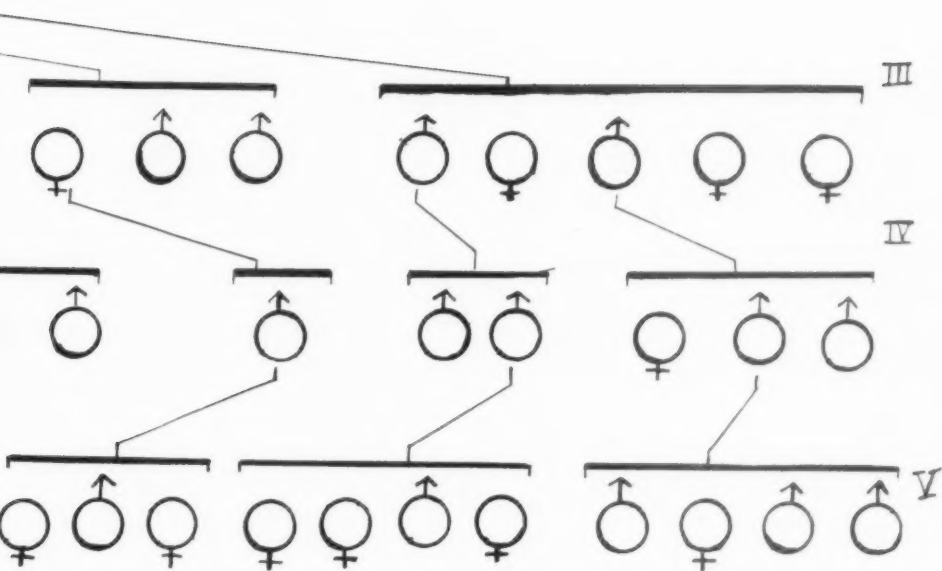
I

II

III

IV

V

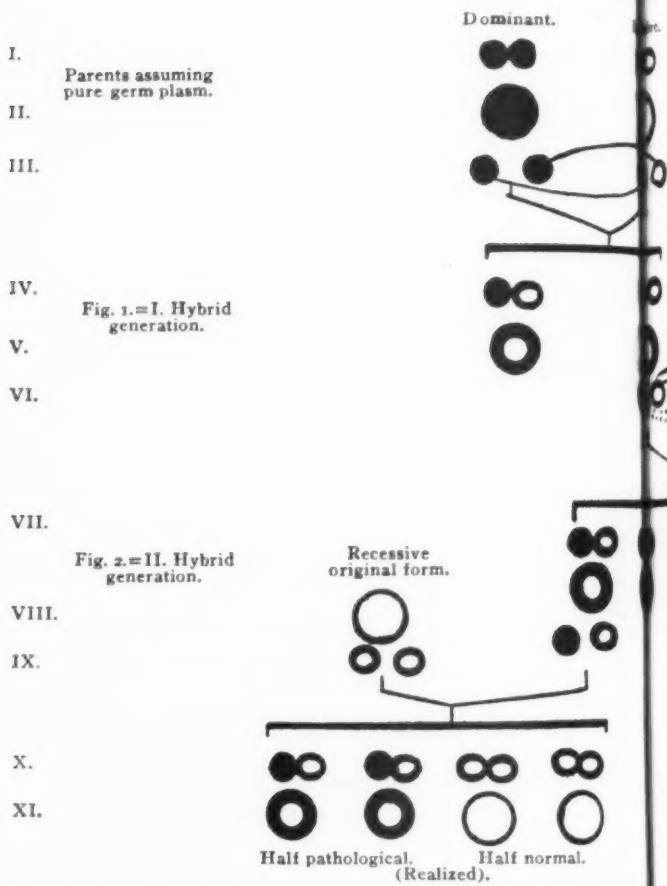


and other points of importance. It is well that they do not know too much about diagnoses, as they might easily fall into the error of making certain diseases fit certain diagnoses, whereas, now their principal part is to collect *facts*, and then these facts are worked over and analyzed. When insufficient data is present no diagnosis is made and the case is considered as unclassified. We have been able to secure valuable data in a large number of cases, and will continue to make systematic investigations in all psychoses before giving any definite conclusions.

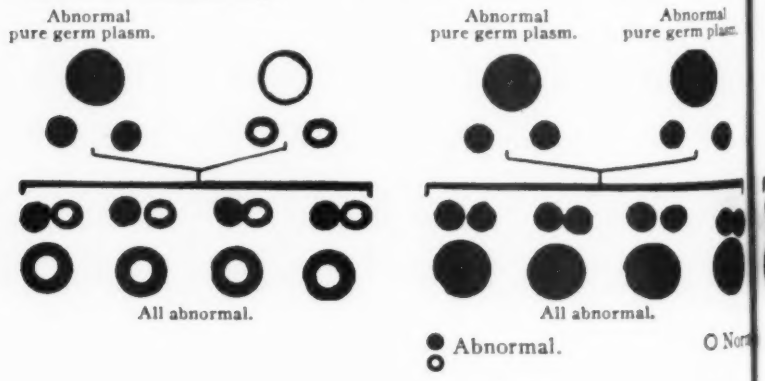
Rüdin states further that in the realm of psychiatry not enough work has been done to say with certainty whether these diseases follow the Mendelian laws or not, and he thinks it will be quite a long time before this question can be fully settled. He disagrees with Herron, that mental diseases do not follow any Mendelian laws, that they are neither dominant or recessive. He is inclined to think that the inheritance of dementia præcox follows recessive type, but the question cannot be settled at the present time. He is also inclined to think that manic-depressive insanity is a dominant type of inheritance. Although he thinks he has evidence which would substantiate these views, at the same time he is not willing to say that these diseases represent two separate types of inheritance. Many psychopathic states and defective conditions, he thinks, follow the same rule as in manic-depressive insanity. From the material at hand, he is inclined to think that intermediate types of inheritance, where there is a mixture in the offspring of the two distinct psychopathic conditions in the parents, is very seldom found. On the other hand, we see a certain similarity between psychopathic diseases in both parents and their offspring.

Rüdin enters into a lengthy discussion of the question of correlation, but for the present we will not get into a discussion of this principle.

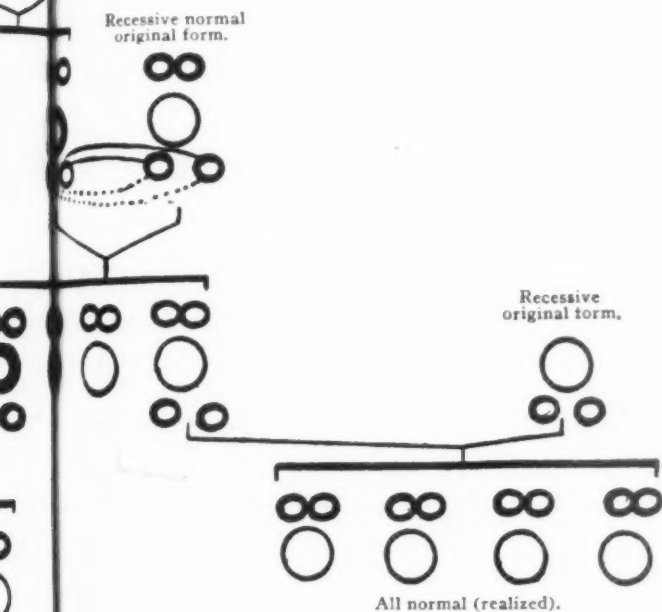
He goes into a detailed discussion of the ways and means of systematic investigation of family histories of patients, and in Fig. VIII is reproduced his heredity chart. As will be seen, this method of charting differs somewhat from the method shown in Plate I. It is a question whether this is a simpler method of charting heredity than the former one. Instead of representing the matings by a line between two parents, Rüdin's method, as can be seen by his chart, is, to my mind, a better one, principally



The following combinations are not realized in the reality, because the constitution fails too in the actuality.



REDUCTION PHALANGES.



cause the mutation of the pure germ plasm of the abnormal and the mated abnormalities

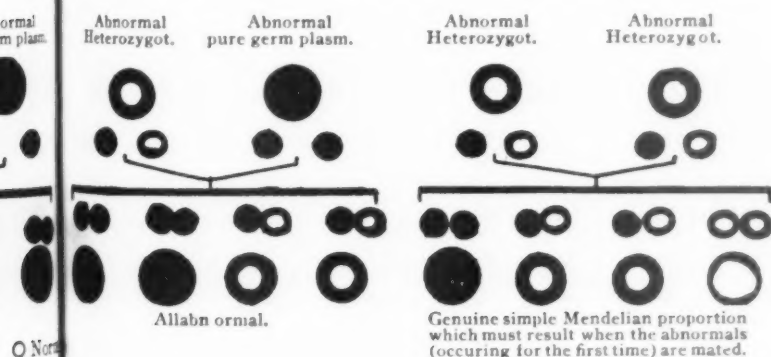












PLATE I.

KEY TO HEREDITY CHART, TAKEN FROM EUGENICS RECORD OFFICE, BULLETIN No. 2.

	Male.	Female.		Other letters used in or around the squares or circles are:
			No Data.	A Alcoholic.
Red			Epileptic.	B Blind.
Black			Feeble-minded.	D Deaf.
Green			Insane.	M Migraneous.
Violet			Criminalistic.	N Normal.
				Ne. Neurotic.
				P Paralytic.
				Sx. Sexually immoral.
				S Syphilitic.
				T Tubercular.
				W Wanderer or confirmed runaway.

FIGURES.

Above the line—Order in the line of birth.

Above the square or circle—Individual reference number.

Below the square or circle—Age at time of death or date of birth or death.

In squares or circles—Number of individuals of that sex.

SMALL LETTERS.

b—Born.

† or (d) Died or dead.

† (d) inf.—Died in infancy.

m—Married.

LINES.

Solid—Connects married individuals and fraternities.

Dotted—Not married or illegitimate.

For display charts. { Green—Paternal side } of individual under study.
 { Red—Maternal side }
 { Violet—Connects related charts or individuals on more than one chart.

SYMBOLS.



-- Shows patient at institution reporting.



Miscarriage or stillbirth.



Institutional care (place under symbol).

because it allows the brothers and sisters of the family to be placed directly in series, while, on the other chart, it is found necessary to separate these brothers and sisters in order to get in all of the matings. Even when matings are represented by drop-

PLATE II.

ABBREVIATIONS FOR CHARTS FROM EUGENICS RECORD OFFICE, BULL. NO. 2

To be used with full face symbols.

a , alcoholic insanity.	p , paranoia.
d , dementia precox.	s , senile dementia.
g , general paralysis of the insane.	t , traumatic insanity.
m , manic depressive insanity.	

To be written on chart.

<i>bd</i> Bright's disease.	<i>la</i> locomotor ataxia.
<i>ca</i> cancer.	<i>md</i> manic depressive insanity.
<i>cb</i> childbirth.	<i>np</i> neuropathic condition.
<i>ch</i> chorea.	<i>obs</i> obesity.
<i>cr</i> cripple.	<i>pa</i> paranoia.
<i>df</i> deformed.	<i>pn</i> pneumonia.
<i>dp</i> dementia precox.	<i>sh</i> shiftlessness.
<i>dl</i> delirium tremens.	<i>sm</i> simple meningitis.
<i>dy</i> dropsy.	<i>sb</i> softening of the brain.
<i>ec</i> excentricity.	<i>sco</i> scoliosis.
<i>en</i> encephalitis.	<i>sd</i> senile dementia.
<i>go</i> goitre.	<i>su</i> suicide.
<i>gp</i> general paralysis of the insane.	<i>va</i> varices, varicose veins.
<i>hy</i> hysteria.	<i>ve</i> vertigo.
<i>id</i> ill-defined organic disease.	<i>x</i> unknown.
<i>kd</i> kidney disease.	<i>?</i> implies doubt.

ping one parent below the line, as is done at the Epileptic Village and the Training School, at Vineland, there is more or less confusion. In Rüdin's method one can see at a glance the number of brothers and sisters, and the proportion of those affected to the normals. The biological symbols used by Rüdin are not as clear as the symbols now in use, and shown in Plate I.

We have adopted at this hospital a combination between these two methods, in which the only change is the method of mating individuals. All other symbols are the same as the original method shown in Plate I.

Rüdin further gives some very complete printed blanks to be filled out by members of the family of the patient, or by a field worker. These are very complicated, and go much into detail, and for our use are rather too bulky.

The work of Rüdin is especially valuable to those working in this field, as many valuable suggestions are given, methods outlined and the essential data to be obtained to make the work valuable. Many of the problems are discussed and methods of attack suggested.

THE WORK OF THE TRENTON STATE HOSPITAL.

It will not be out of place here to describe the methods used at this hospital, where we combine "field work" for the study of heredity with "after-care" work.

We have had for a year two trained field workers, supplied through the courtesy of Dr. Charles B. Davenport, to collect data in regard to hereditary factors in the family history of patients. We have not limited them to any certain line, but have insisted that all possible information in regard to relatives should be obtained. In one instance one field worker obtained information in regard to 3300 members of a family group. This family group was located in one of the northern counties of the state, and had intermarried to such an extent that only five distinct families were represented. Of this number, 76 were insane, 22 were patients in the State Hospital, at Trenton, 14 in other hospitals and 40 not committed. Following is a list of the various abnormal individuals:

Sexual offenders	50
Epileptics	5
Alcohol	46
Feeble-minded	13
Cancer	19
Sarcoma	1
Blind	2
Congenital defective	1

In practically every case investigated it is possible to obtain some information in not less than 200 members of a family, and sometimes a great many more. The field workers have found no difficulty in obtaining this information, and, without exception, they have received courteous treatment from the individuals whom they have visited. We find that the families are much interested in the work and will give all the information possible. The field worker becomes acquainted with the patient, and she talks with the patient before going to the family, and carries messages back and forth, and in this way establishes friendly relations. They spend on an average of fifteen days a month in the field. The rest of the time is spent at the hospital, writing up histories and making out charts. They do not attempt to make diagnoses, but take down all that is given by the relatives. Whenever the family physicians know anything about the family, they are visited, and their opinions also noted. Where relatives have been in the hospital, reference is made to this and a diagnosis made from the records when possible. When relatives have been in other hospitals, either in this state or in any other state, we have endeavored to obtain a copy of the records of these institutions.

The patients in the hospital are catalogued according to communities, towns, cities, etc., and when the field worker goes into a certain district she has the names of the discharged patients who are living in that community. A visit is made to these discharged patients to learn something as to their condition, and often the environment is such that it is necessary to report this to the hospital, and then advice can be given to the family as to the right method to pursue to prevent the recurrence of an attack.

This "after-care" work is a very important part of our field work, and has resulted in much good to discharged patients. Several times during the year the field workers devoted all their time to looking up discharged patients. Besides looking up the heredity in families, they inquire into the habits, domestic relations, occupation, and any other factors which are wanted by the physicians. In certain cases, where the statements of the family were questioned, the field workers had to go personally into the community, and they were able to prove or disprove these statements.

We have now collected a large number of pedigrees, averaging 200 or more to a family. It is not my purpose to go into any close

analysis of these charts, but a few are given merely to show the progress of the work.

In Chart I we have a pedigree of a case of neurasthenia. The generations are given on the left-hand side of the chart. Each individual is numbered according to that generation. A transcript of the notes is given in this case to show the method of the work.

To summarize, we have a patient, a neurasthenic, one of three children, a sister of whom was epileptic and a brother nervous. The father was a manic-depressive case, who committed suicide, and the mother was neurotic. Father's family is apparently of good stock. The mother's family, however, shows marked defects. Maternal grandfather was a neurasthenic. Maternal grandmother was also a neurasthenic. One maternal uncle epileptic, and another alcoholic. Maternal aunt suffered from manic-depressive insanity, but recovered. An epileptic aunt has one epileptic boy. One of patient's great-great grandmothers, on the mother's side, was insane for 30 years, died at the age of 60, following the death of child, from which she did not recover. In the maternal grandparents' line there is a good deal of nervousness and neurasthenia. IV-39 was a patient in this hospital, manic-depressive insanity, recovered, and married a former patient. His wife had another attack, and recently the man committed suicide. His father was also a manic-depressive case, and committed suicide.

Following are the notes made by the field worker in this case:

H. H., neurasthenia (sexual) on constitutional basis. Admitted July 24, 1911. Age 20.

H. H., born in 1891, oldest child of John G. H. and Harriet S. H. He has always been extremely nervous since early childhood, had never been like other children and has always been a source of constant worry to his mother. He has always read "deep" books and stayed indoors to read them. Many of these books were quack medical books. He is the oldest of three children. The next child, a girl, Helen, is nervous and has suffered from convulsions after eating something which did not agree with her. It is perhaps epilepsy, as a brother of her mother suffers from epilepsy. The youngest child, a boy, is very nervous. There is a strong neuropathic tendency throughout the family, past as well as present generations. There is no insanity in the father's family, though there is a tendency toward sex perversion on the paternal grandmother's side. The patient's father himself committed suicide following two years drinking heavily after business reverses. The mother's family is all neuropathic, very few normal individuals to be found in the entire history. A great many of the people not committed were in a much more dangerous condition than the patient him-

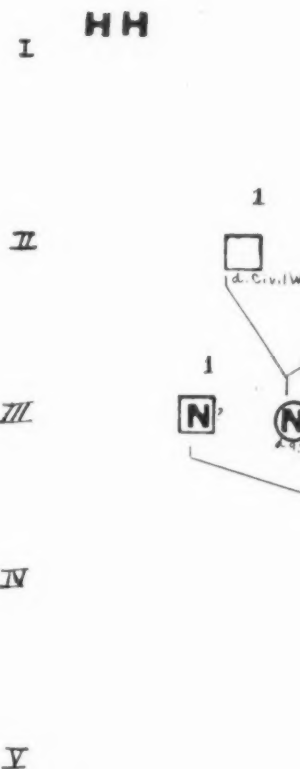


CHART I.

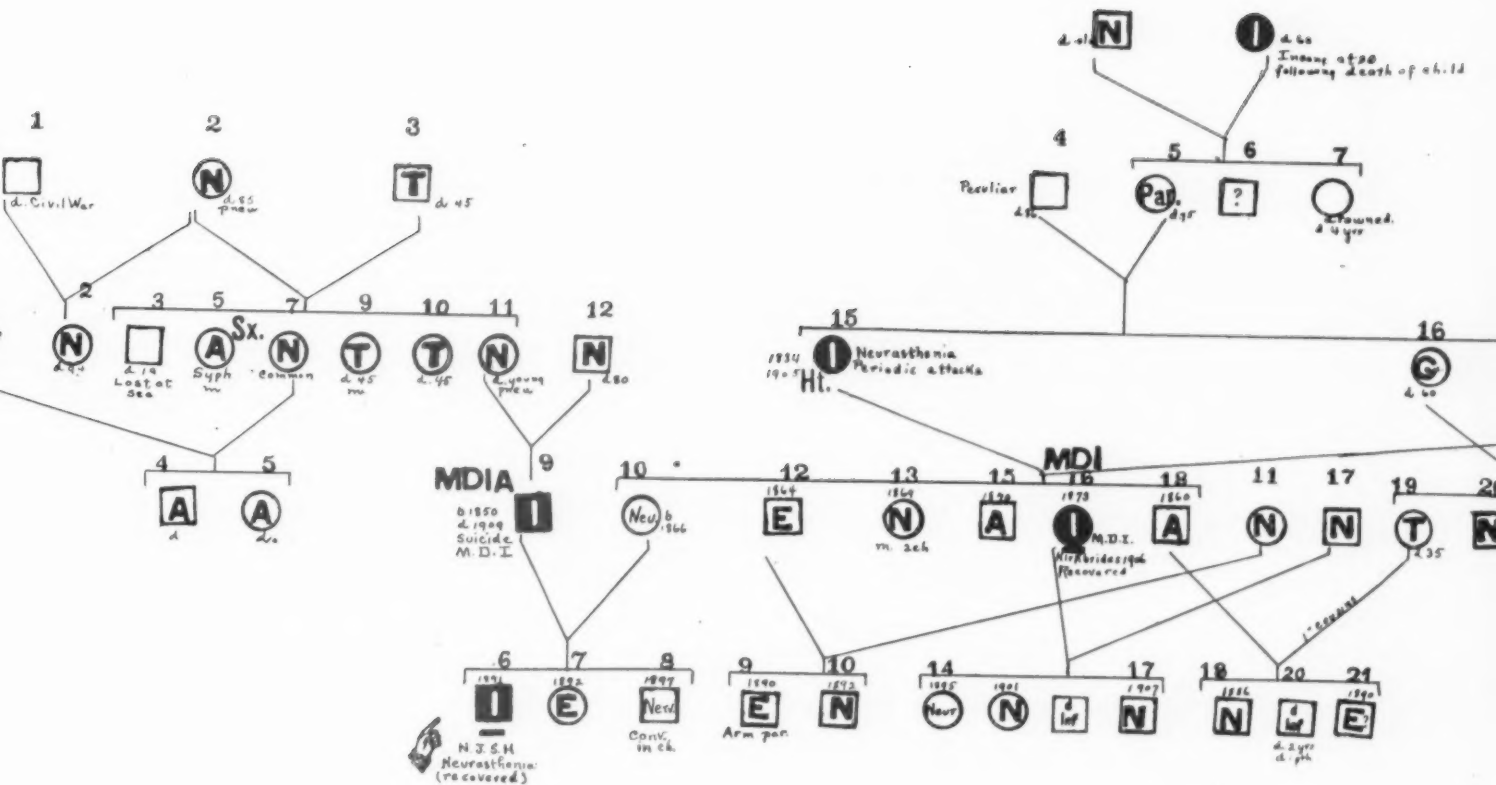
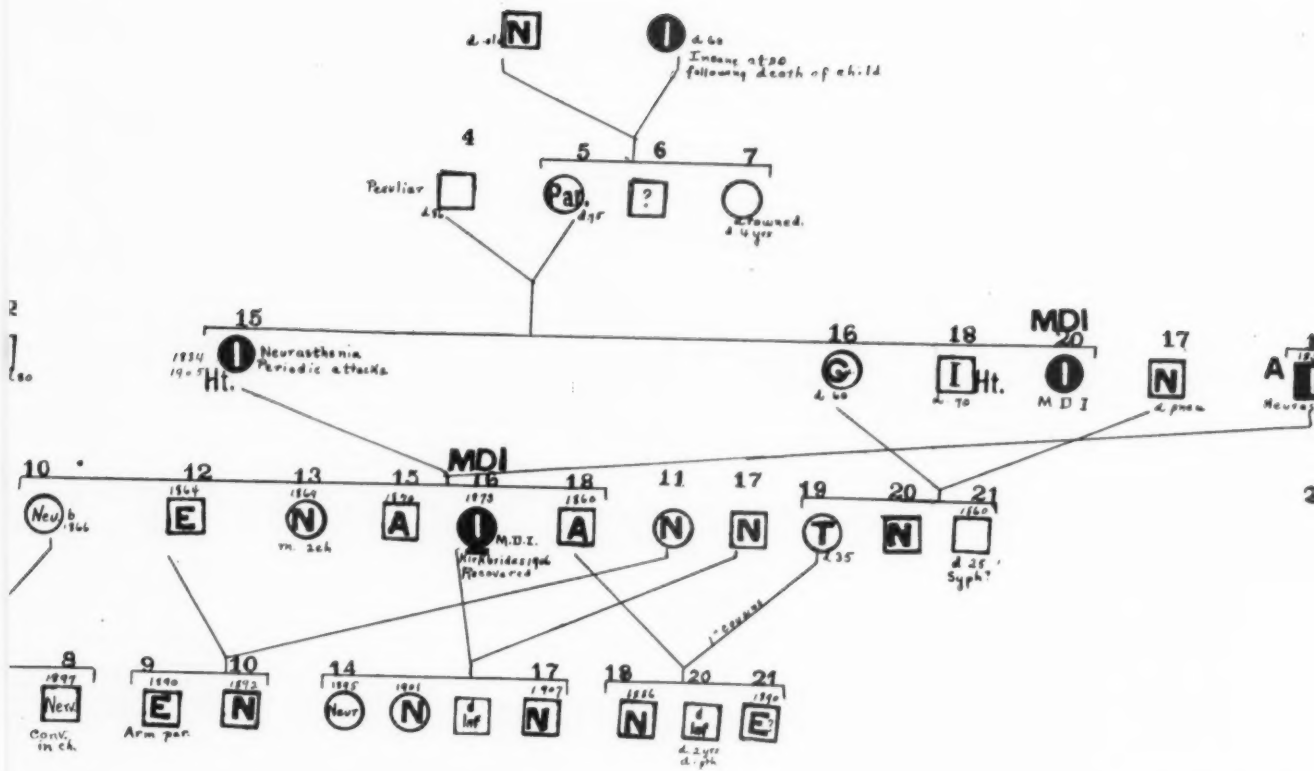
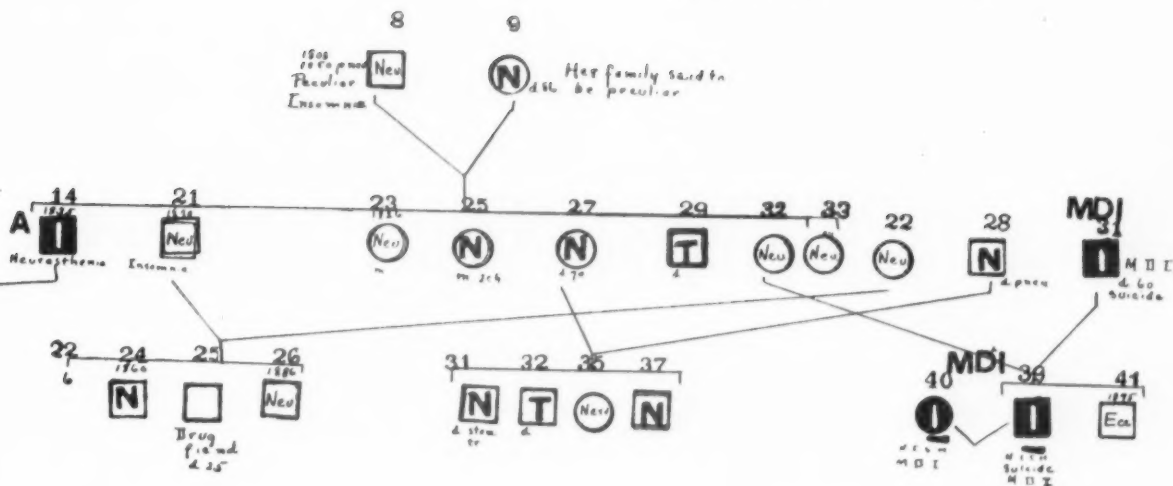


CHART I.



Insane..... 9
 Epileptic..... 4
 Alcoholic..... 4
 Neurasthenic 3
 Neurotic..... 12
 Drugs..... 1
 Total on Chart..... 140





self. The maternal grandparents and great grandparents were eccentric, a great-great grandmother was insane, a maternal aunt was insane and recovered, a maternal uncle epileptic, a maternal great aunt and uncle insane, though never committed. A second cousin insane and, in this institution, recovered. Many others neurotic.

I. Nothing known of this generation of H.

II-2. E. P., married first a man by the name of H. He was killed in the Civil War. She died at 85 of pneumonia, and was normal always. She had one daughter by this first marriage, Eliza.

III-2. E. H., married C. F. (III-1), of W., N. J. She died at the age of 94 years. They had no children, but brought up J. H., the patient's father.

II-3. J. B., E. P.'s second husband died at 45, T. B. He was normal mentally. They had six children, James, Lydia, Angeline, Harris, Jane, Martha.

III-3. James, lost at sea, age 19.

III-5. Lydia B, who is still living. She is a *sex offender*, is alcoholic, has had syphilis and is described as a hard, bad woman. She married E. F. (II-4), a politician, of N., who is dead. Cause unknown. They had one child, Lizzie.

IV-2. Lizzie, who of T. B. She married and had one child, that died at birth.

III-7. A. B., still living, married and had two children. She is described as being "common." Her children were Edward and Harriet.

IV-4. Edward, very alcoholic, died of asthma. Married.

IV-5. Harriet, very alcoholic, died of dropsy while still young. Married. No children.

III-9. H. B., died at 45 of T. B. She married E. J., of N. They had one son.

IV-7. M. J., born 1865, married, and had four children, Raymond (LV-2-5), Perry, Anna May, Mildred, all normal children.

III-10. Jane, died at 45 of T. B.

III-11. M. B., died very young of pneumonia. She married.

III-12. E. H., of N. He died of old age at 80. He married again and had four children. Nothing known of them. They had one son, J. H., the patient's father.

IV-9. J. H., born 1850. He was a newspaper man, and, following business reverses, took to drinking heavily for two years. He quit drinking, but felt the disgrace so keenly he *committed suicide*. He must have been temporarily insane, for he had made all his plans for the next day—died 1899—suicide. He married Harriet S.

IV-15. Charles, born 1870, works on railroad, is normal, but drinks quite heavily.

- IV-16. Louise S., born 1873. She was always nervous, even as a child. She was finally committed to *Hospital*, 1896. She remained there three or four months, but it was a year before she fully recovered. *Diagnosis, melancholia*. She married S. C., a school principal of W. They have had four children, Mildred, Frances, Cecil, and a baby that died at 11 days.
- V-14. Mildred, born 1895, very *nervous*.
- V-15. Frances, born 1901.
- V-16. Boy, died at 11 days.
- V-17. Cecil, born 1907, normal.
- IV-18. David S., born 1860. Periodically alcoholic. He married Ella K., a first cousin, who died of T. B. at 35 years. They had three children, Clarence, Tuttle, Lester.
- V-18. Clarence, born 1886, a government life saver. He is delicate, but normal.
- V-19. He married G. T. They have one daughter.
- VI. Ruth, born 1909.
- V-20. Tuttle, died of diphtheria at 2 years.
- V-21. Lester, born 1890, a farmer at F. He had *severe convulsions* up to the time he was 14 years. None since.
- I-1. S. L., died very old. Married H. T.
- I-2. H. T., *insane*. She went insane following the death by drowning of her 4-year-old daughter. She was kept at home and was mildly demented. Died at 60. They had three children, Margaret, Charles and the girl who was drowned.
- II-5. Margaret L., died at 75 of paralysis. She married (II-4) F. C., a miller of F. He was of rather weak character and was *peculiar*. Died at 85 of old age. They had four children, Hannah, Mary, John, Anna.
- III-15. Hannah (patient's grandmother), married C. S.
- III-16. Mary, died at 60 of *cancer* of stomach. Married W. K. (III-17), who died of pneumonia. They had three children, Ella, Frank, Edward.
- IV-9. E. K., married her first cousin, D. S. (IV-18). She died at 35 of T. B.
- IV-20. Frank, living, normal.
- IV-21. Edward, died at 25 in 1885, after 3 or 4 years sickness. He lost use of limbs, flesh rotted away, thinks it may have been syphilis.
- III-18. John, died at 70 of heart failure. *He told lies, did not seem to know they were lies*. Married H. B., who is still living. No children.
- III-20. Anna C. *She is subject to depressed spells. Has always posed as a martyr*, knowing she will be rewarded hereafter. Tells malicious lies about the neighbors and friends, seemingly believing them to be true.

II-8. D. S., born in 1808, died in 1850 of pneumonia. He was always nervous and peculiar. Suffered from *insomnia* always. He married (II-9) H. H., who died of old age at 86. She was normal, though her family is said to have been queer. They had fourteen children, Charles, Kate, Elizabeth, Jacob, Anna, Harriet, William, Helen, and six that died in infancy.

III-14. Charles (patient's grandfather).

III-21. Jacob, born 1832, still living. He is a newspaper man, an editor at times. He has been *neurotic* for years. Has suffered from *insomnia* and is *childish now*. He married Martha J. M., who is very nervous. Still living. They had nine children, Robert, Albert, Warren, and six that died in infancy.

IV. H. S., born in H. in 1866, a daughter of C., and H. S. She is of a highly *nervous temperament*. Worries over H., over the other children, etc. She recognizes plainly the neurotic tendency in the family. They have three children, Hamilton, Helen and Jack.

V-6. H. H., born 1891. Admitted to N. J. S. H. in July, 1911, diagnosed *neurasthenia* (sexual) on constitutional basis.

V-7. H. H., born 1892. Nervous temperament. She has had severe convulsions since infancy whenever anything she eats disagrees with her. Had one severe convulsion, summer, 1911. *Epilepsy*.

V-8. J. H., born 1897. Is extremely *nervous*. Had convulsions while teething.

III-14. C. S., born 1835. Lived in H., a mason by trade. He has always been ugly and *irritable*, "*devilish*" at times. Seemed to try to torment his family, drove his wife nearly insane, with his tormenting. Has been a steady drinker all his adult life. He married (III-15).

III-15. H. C., of F. She was one of four children. She was born in 1834, died in 1905 of dropsy and heart trouble. She was very nervous, almost, if not, insane, at times, when she became so excited that she had to be restrained. She and C. S. had six children, Harriet, Walter, Jennie, Charles, Louise, David.

IV-11. Walter, born in 1864. He is an electrician in N. Has suffered from *epilepsy* all his life. Is rather irritable and hard to get along with. He married L. H., who is strong and well. They have two sons, George and Ben.

V-9. George, born 1890, had severe convulsions as a child, one arm has been paralyzed since he was 6 or 7 years of age. *Epilepsy* (?).

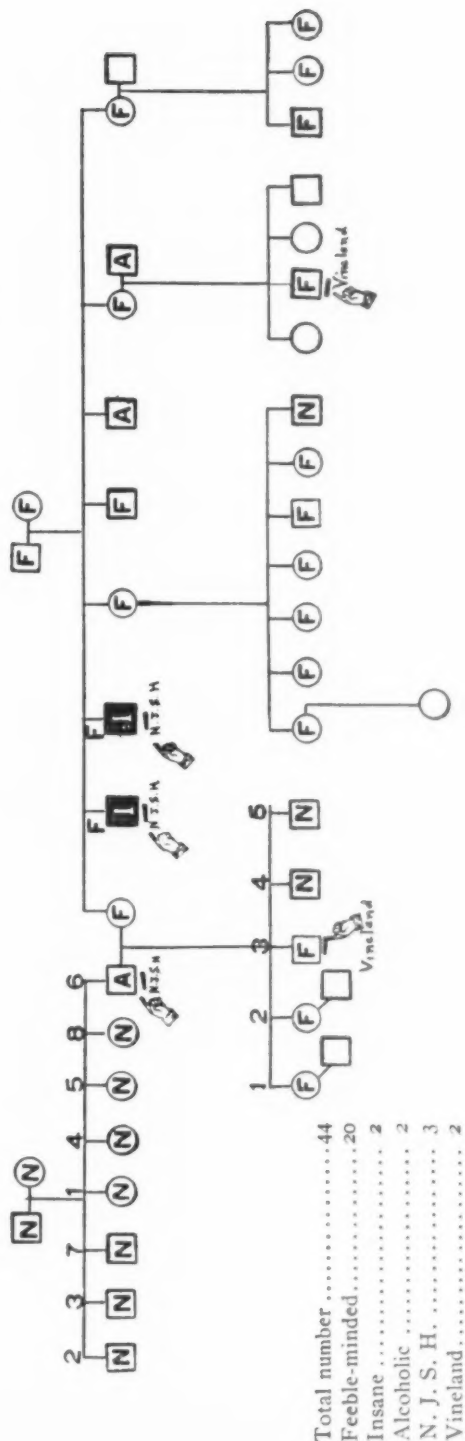
V-10. Bert, born 1892, normal.

- IV-13. Jennie S., born 1889. She is normal in every way. Married Richard N., of F., N. J., painter and decorator. Three children, Joseph, Ethel, Richard.
- V-11. Joseph, born 1894.
- V-12. Ethel, born 1897.
- V-13. Richard, born 1902.
- IV-24. Robert, born 1860. A musician in P. He married J. V., of L. No children.
- IV-25. Albert, died at 25. He was a dentist, and became a morphine fiend, which drug probably caused his death.
- IV-26. Warren, born 1886, a farmer. Very nervous. Married. No children.
- III-23. Elizabeth, born 1826. *Very nervous*. Married E. T., who died of Bright's disease. No children.
- III-25. Kate, still living. Married R. O., of H., N. J. They had several children, only two lived to grow up, Harry and Richard.
- IV-31. Harry, a traveling man, married M. S., who died of stomach trouble. They had two children, a girl and a boy.
- IV-33. R. O., died when a young man, of Bright's disease. He was a doctor.
- III-27. A. S., normal. Died at 70 years of old age. She married T. T., who died of pneumonia. They had four children, Melville, Kate, Frank, Edward.
- IV-31. Melville T., died of stomach trouble. He married M. C. They had two children, Melville and Anna.
- IV-33. Kate, very nervous, married C. F., who died of appendicitis. They had two children, Norman and Charles.
- IV-37. Frank, normal, married Olive —. They have 5 children.
- III-29. William, died of T. B., while still a young man.
- III-32. Harriet S., died of uræmic poisoning. She was always *neurotic*, always doctoring for her nerves. If she had not been so well taken care of would probably have been a neurasthenic case. She married W. S., a school principal, who *committed suicide* at 60 years. They had two children, Forrest and Lyle.
- IV-39. F. S., admitted to N. J. S. H. in 1907. Discharged in 1908. A case of manic-depressive insanity, manic attack. Died March, 1912, suicide. He married E. D. C., whom he met while in the hospital. She was admitted in 1906, discharged in 1908, manic-depressive insanity, depressed type. Readmitted February, 1912, M. D. I., manic type.
- IV-41. L. S., born in 1875. He is a civil engineer, and is rather *eccentric*.
- III-33. H. S., born in 1850. She is *very nervous*. Unmarried.

Chart II is an illustration of the method charting that is used by the Eugenics Record Office.

CHART II

BB



Total number	44
Feeble-minded	20
Insane	2
Alcoholic	2
N. J. S. H.	3
Vineland	2

There are 42 individuals in this chart, whereas, Chart I has over 70. This shows the inheritance through marriage of two feeble-minded individuals. Nine children were born to this family, all of which are feeble-minded, one alcoholic. Two of these children are inmates of this hospital at present. One girl of this feeble-minded pair married a man, who was an alcoholic, but his family was normal. As the result of this union three are feeble-minded and two normal. One feeble-minded child is in Vineland. Another girl married a man, who was an alcoholic, and has one feeble-minded child at Vineland. Four members of this group are now cared for by state institutions. There are altogether 22 feeble-minded progeny from the original mating.

Chart III is a summary which represents 200 individuals, 15 of which were insane. Ten were in the Trenton State Hospital, and 12 were tubercular, three neurotic, one feeble-minded. Seventeen died in infancy. Nineteen were alcoholic. Of the psychoses, we have six manic depressives, four dementia præcox, one questionable dementia præcox, one senile paranoid condition, one imbecility, one feeble-minded and one unclassified. The paternal line is fairly good, with the exception of alcoholism. The maternal line, on the other hand, is very much affected. The mother is neurotic. One sister was a border-line case. There are two sisters manic-depressive. The mother had nine living children. Three died in infancy, making a family of 12. The mother was insane, had manic-depressive insanity, from which she recovered, and is now living at the age of 83. The father was alcoholic, had a sister who was a senile paranoid condition, and a brother dementia præcox. This brother had two children, both of which are dementia præcox, and inmates of this hospital. He married a woman put down as peculiar. A maternal cousin is a case of dementia præcox in this hospital. In this family, out of five individuals who were insane in the grandparents or great grandparents, only two were in institutions, while all the cases that were insane in the parents' children were committed to institutions. This fact will be found to run through all our charts, and one can conclude that in the preceding generations the percentage of cases who were insane and who were committed to an institution was much smaller than the percentage of the same class in present generation.

I J.K.

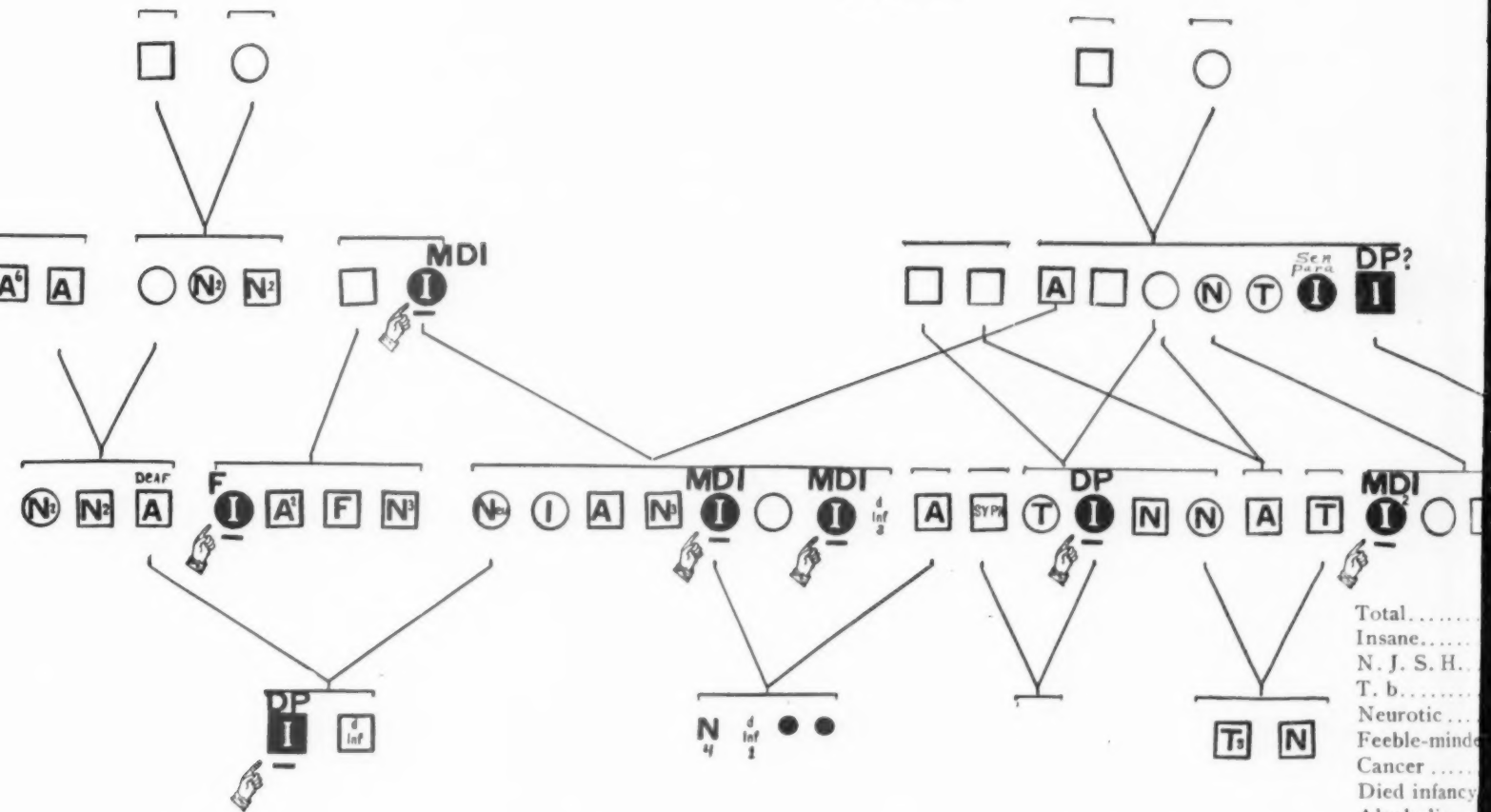
II ○ A⁺ A

III (N)

IV

Patient is d. p.

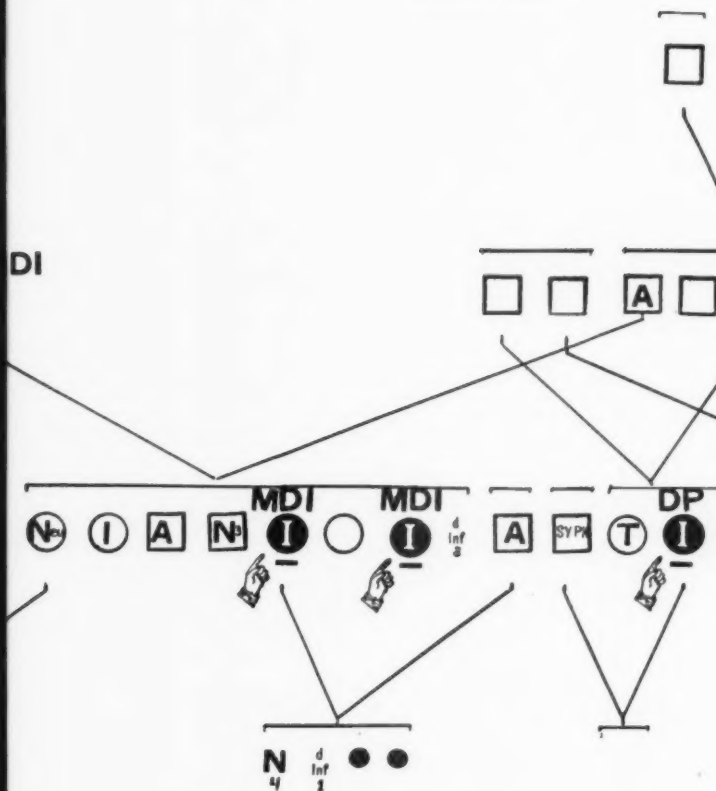
CHART III.



is d. p. Father alcoholic, mother neurotic. Paternal line alcoholic.

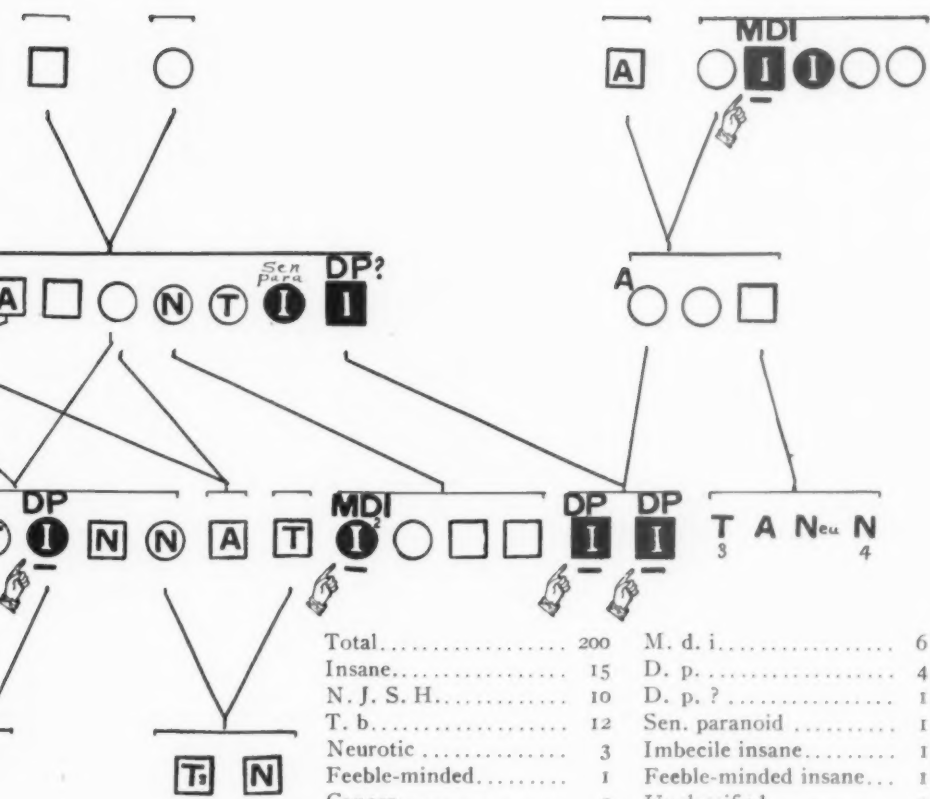
Maternal line: Grandmother m. d. i.; grandfather alcoholic; 2 m. aunt and 1 f. and insane; 1 grand uncle d. p.; 1 grand aunt senile parano

CHART III.



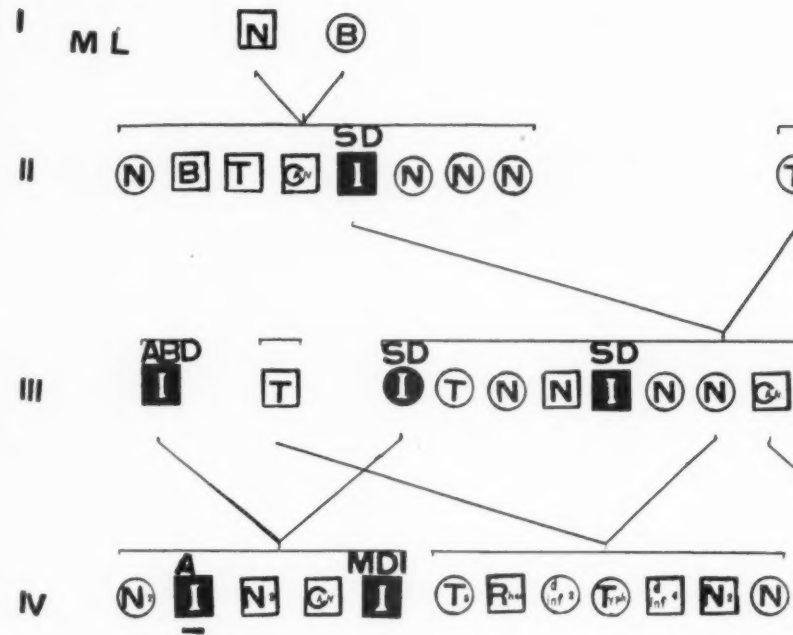
Paternal line alcoholic.

Maternal line: Grandmother m. d
and 1 f. and insane; 1 grand un



Total.....	200	M. d. i.....	6
Insane.....	15	D. p.	4
N. J. S. H.....	10	D. p. ?	1
T. b.....	12	Sen. paranoid	1
Neurotic	3	Imbecile insane.....	1
Feeble-minded.....	1	Feeble-minded insane...	1
Cancer	1	Unclassified	1
Died infancy	17		15
Alcoholic.....	12	Patients N. J. S. H.....	10

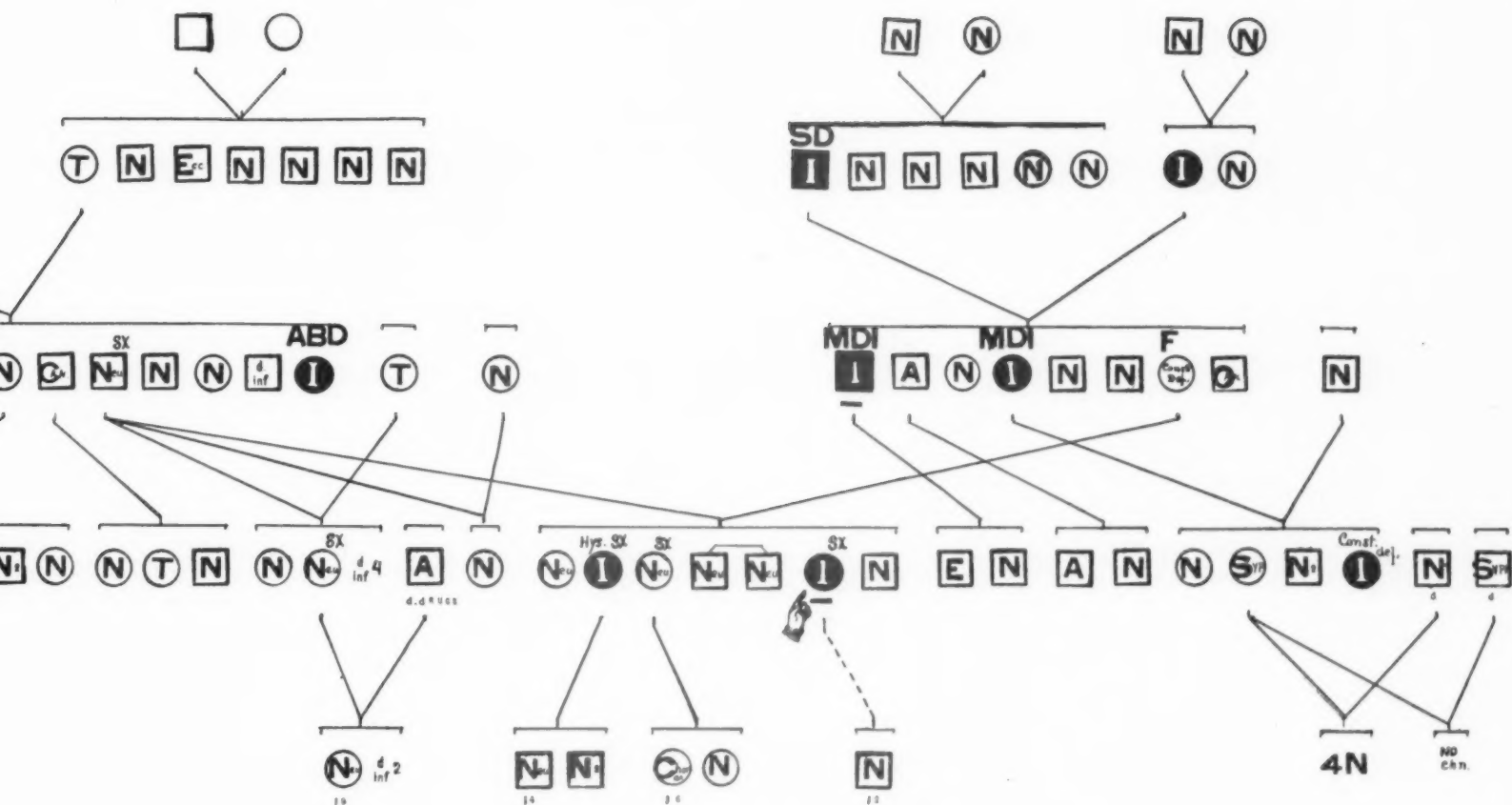
1 m. d. i.; grandfather alcoholic; 2 m. aunts m. d. i.; 3 m. 2nd cousins d. p., 1 m. d. i.
 grand uncle d. p.; 1 grand aunt senile paranoid.



V

Total.....371	Insane .....14	Syph. 2	Dea
Abnormal..... 73	Alcoholic 6	Blind 2	Crip
Normal .....298	T. b.....16	Cancer 5	Cor
D. Infancy 16	Sx. ....11	Epil..... 1	Neu
	47	10	

CHART IV.



Deaf	2	Alc. ins.	1	Con. def.	1
Cripple	2	Sen. dem.	2	Ar. scl.	3
Con. def.	2	Sen. psyc.	3	M. d. i.	2
Neur.	10	Traum. psyc. ...	1	Psychas.	1
	16		7		7

Patient is psychasthenic.

Father is neurotic and sx., mother constitutional defective.

Paternal line: 3 senile dementia, 2 arteriosclerotic, 1 m. d. i., 1 alc. ins.

Maternal line: Grandfather senile dementia, grandmother insane, 2 m. d. i., 1 f. insane, 1 epileptic.

Fraternal line: 7 neurotic, 4 sx., 2 insane.

This has an important bearing on the apparent increase in the number of insane in institutions at present, for I think I can be definitely shown that a large proportion of those who were insane in the community in previous generations were kept at home.

Chart IV represents a family of 371 members, in which 73 were abnormal in the following proportions: Insane, 14. Alcoholic, six. Sexual offenders, 11. Syphilitic, two. Blind, two. Cancer, five. Epileptic, one. Deaf mutes, two. Congenital, two. Constitutional defects, two. Neurotics, 10.

Diagnoses of the insane are as follows:

Alcoholic insanity	1
Senile dementia	2
Senile Psychoses	3
Senile trauma	1
Senile defective	1
Arteriosclerotic brain disease.....	3
Manic-depressive insanity	2
Psychasthenia	1

The patient represented by three asterisks was psychasthenic. She has six brothers and sisters. Two brothers, twins, and neurotic. Two sisters are neurotic, and one sister insane, with diagnosis of hysteria. We find that the mother was a constitutional defective. There were two brothers and sisters, each manic-depressive insanity, and the maternal grandparents were both senile psychoses. The father was neurotic or psychopathic sexual individual. He was married three times. He had two sisters. One was senile and the other arteriosclerotic. One brother suffered from senile psychosis, due to head trauma, at the age of 50. There were 13 brothers and sisters in this family. Three could be classed with the senile psychoses, and we find that the father of this family died at the age of 60, of senile dementia, while the mother came apparently from normal stock.

This chart illustrates a very important point, that is, the hereditary features of senile psychoses. Here the diagnosis is not made merely on old age, because there are in this family thirteen normal individuals living at the ages of 70, 93, 60 and 85. This tendency to senility in this family seems to be in the proportion of three to twelve, 13 children dying in infancy.

Another significant fact is the tendency in succeeding generations to develop manic-depressive insanity and psychopathic states.

Chart V illustrates inheritance in a case of dementia præcox. The patient was one of six children, three of which died in infancy, one was neurotic and one normal. The father was a case of manic-depressive insanity, recovered, living at the age of 62. He is one of six children. One brother has arteriosclerotic brain disease, three normal, one sister neurotic. Patient's maternal grandparents, the grandmother's line, is apparently normal. His paternal grandfather was a constitutional defective, died at 66, of arteriosclerosis. The grandfather has 12 brothers and sisters. One brother is put down as melancholy. One died at the age of 42, had sunstroke, and died insane. One was a constitutional defective, died at the age of 19. There were five affected individuals in this group of 13. Seven could be put down as normal, one neurotic. The mother of the patient was neurotic. She was one of fifteen children, seven of which died in infancy. Three were normal and one had harelip. The maternal grandmother was put down as insane. The maternal grandfather apparently normal line. We have a summing up, then, of a total of two hundred ninety-two. Insane, fifteen. Epileptics, four. Feeble-minded, one. Neurotic, five. Harelip, one. Syphilis, two. Sexual offenders, two.

Diagnosis of those insane are as follows:

Constitutional defective	2
Melancholia	1
Dementia præcox	1
Psychoses following sunstroke.....	1
Hysteria	1
Manic-depressive insanity	3
Arteriosclerosis	2
Depression	1
Feeble-minded	1
Unknown	2

CONCLUSIONS.

We have not attempted to analyze these charts carefully, but they are given merely to illustrate the progress of the work, and also to illustrate what a difficult task the analysis of these charts means. Frequently, when a point in question is necessary, the field worker visits the family again to clear up these disputed points.

I P HW

II

III

III 

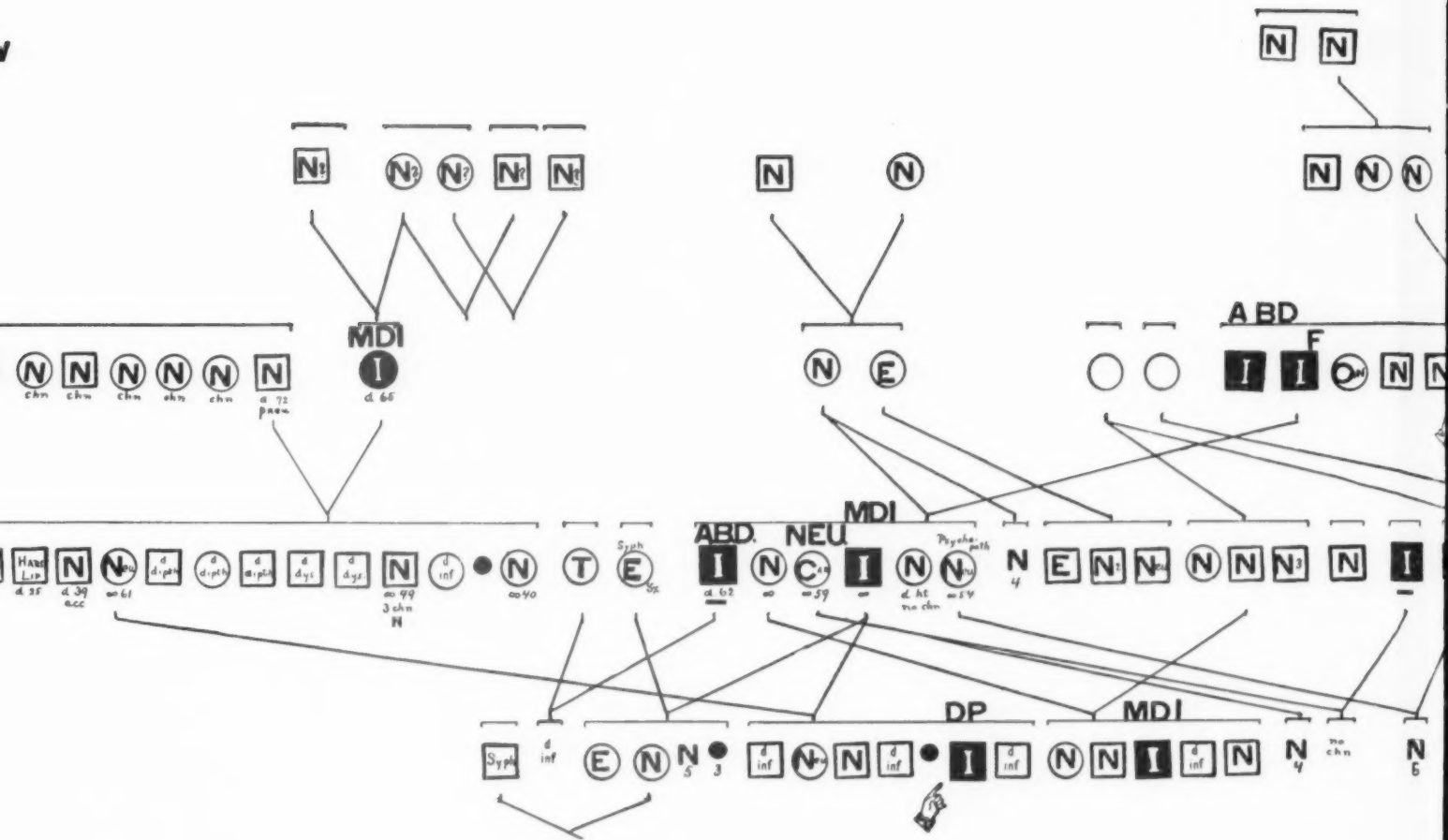
IV

IV 

V

Total.....
Const. def....
Melancholy ..
D. p.
Sun stroke ..
Hysteria

CHART V.



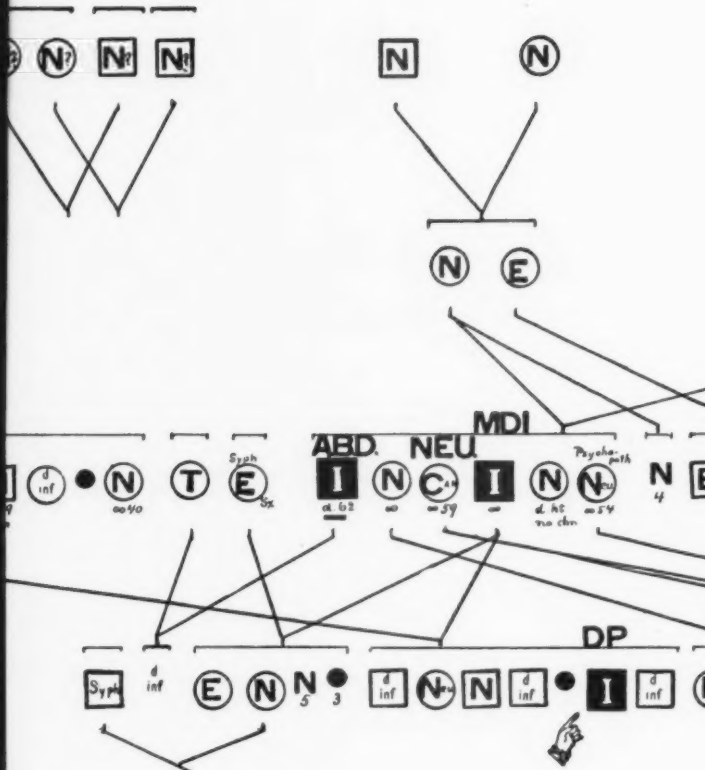
.....292
t. def..... 2
ncholy..... 1
..... 1
troke..... 1
eria..... 1

Art. scler..... 2
M. d. i..... 3
Depression..... 1
Feeble-minded ins..... 1
Unknown..... 2
Insane..... 15

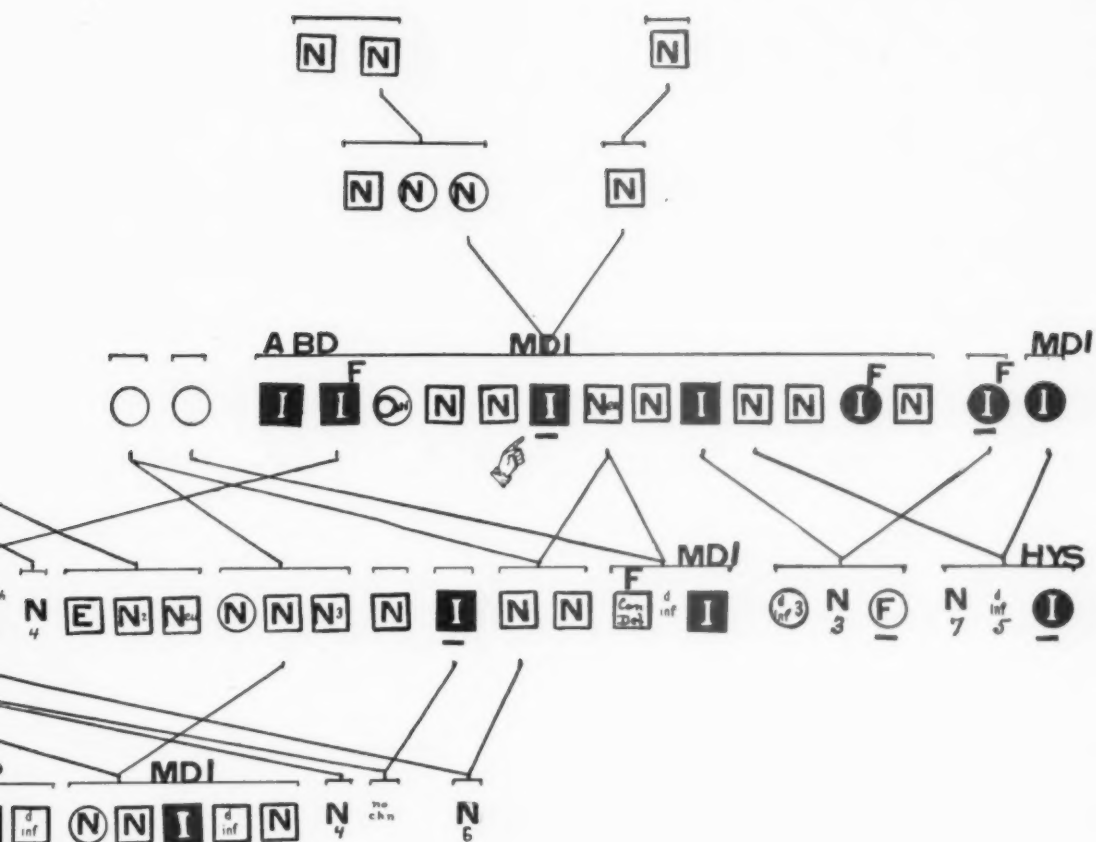
Epilepsy..... 4
Feeble-minded..... 1
Neurotic..... 5
Hare lip..... 1
Syphilis..... 2
Sx..... 2

Patient d. p.
Father m. d. i., mother neurotic, m. grandmoth
Maternal line: Clear, except 1 m. d. i., 1 neurot
Paternal line: 5 m. d. i., 2 arteriosclerotic, 3 feebl
3 epileptic, 1 hysterical.

CHART V.



..... 2	Epilepsy	4	Patient
..... 3	Feeble-minded	1	Father
..... 1	Neurotic	5	Maternal
d ins. 1	Hare lip	1	Paternal
..... 2	Syphilis	2	3 e
..... 15	Sx	2	



Patient d. p.

Father m. d. i., mother neurotic, m. grandmother m. d. i., paternal grandfather insane (f.).

Maternal line: Clear, except 1 m. d. i., 1 neurotic.

Paternal line: 5 m. d. i., 2 arteriosclerotic, 3 feeble-minded insane, 2 feeble-minded, 5 neurotic, 3 epileptic, 1 hysterical.

In this paper no attempt has been made to give any definite conclusions regarding the hereditary factors in the various psychoses. We have reviewed some of the most important work done so far, and outlined the methods to be pursued to obtain the best results in future work.

We have also spoken of some of the difficulties to be met with, especially when analyzing the material as it comes from the field workers. It is again well to emphasize the necessity of maintaining an open mind regarding these problems, and not to be too biased in attempting to make the facts fit the Mendelian laws. At the same time, we recognize that a comprehensive knowledge of the laws will assist us materially in analyzing our data and in arriving at practical conclusions. We also feel that much valuable material will be obtained which will aid us in solving the problems of prophylaxis and prevention of mental diseases. We hope that other hospitals and institutions will adopt this method of studying these important questions.

I wish to express my thanks to Miss Florence I. Orr and Miss Elizabeth P. Moore (field workers at this hospital) for their valuable assistance in making charts and furnishing valuable data for this paper.

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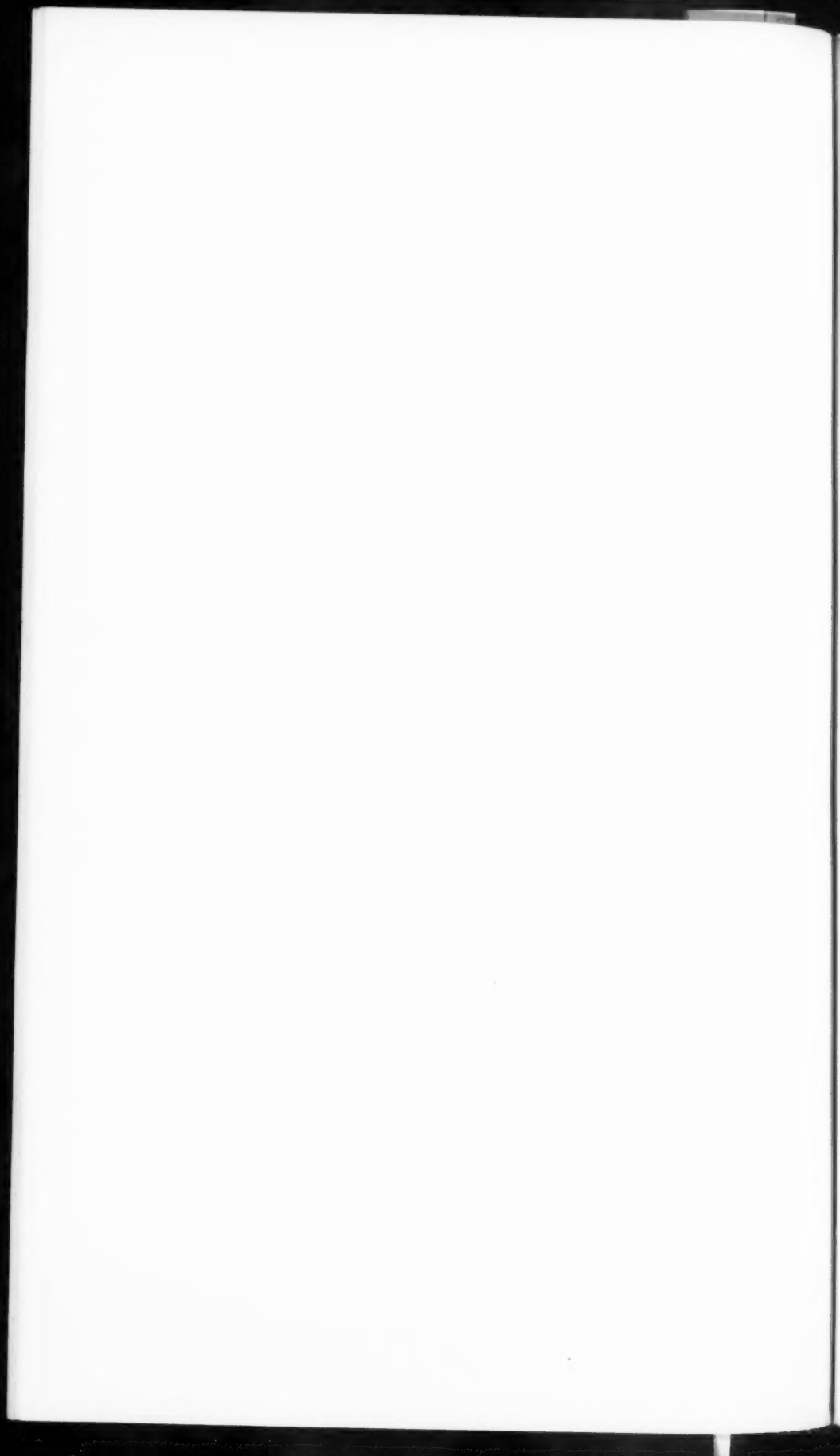
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UNILATERAL HYPERTROPHY, INVOLVING THE ENTIRE LEFT SIDE OF THE BODY.*

By PETER BASSOE, M. D., CHICAGO.

The patient, an Italian boy, sixteen years old, was admitted to my service in the Presbyterian Hospital on April 25, 1911. He came on account of pain in the right foot, apparently due to tendon synovitis and slight sprain of the ankle, brought on by working a foot-machine in a shop.

Family History.—The father, mother, a brother and two sisters are well, of ordinary size, and without deformity. There is no history of any case of similar or other deformity in the family.

Personal History.—There was nothing unusual about his birth and early mental or physical development except that it was noted at birth that everything on the left side was larger. It seems from the statement of the relatives that the proportion between the two sides has always been about the same. He had scarlet fever in early childhood.

Examination.—A glance at the accompanying illustration will show the marked prominence of the left side of the face and the general enlargement of every part of the left side of the body. The prominence of the cheek appears to be due to an increase in subcutaneous fat. It will be noted that the left arm and leg are considerably longer than the right, and that both feet are decidedly large in proportion to the rest of the body. The following measurements show how the hypertrophy has involved practically everything measurable on the left side:

Measurements.—Total height, 152 cm. (4 feet, 11 $\frac{7}{8}$ inches). Height of right shoulder, 124 cm.; height of right iliac crest, 89.5 cm.; circumference of neck, 29 cm.; the circumference of the head is 57.5 cm. The distance from the inion to the glabella horizontally around the right side is 26 cm.; around the left side, 27.5 cm.

* This paper forms contribution number two of the Worcester State Hospital (Mass.), Series of 1912, offered in compliment to Dr. Hosea Mason Quinby on the event of his retirement from the Superintendency after 20 years of service.

	Right side.	Left side.
	cm.	cm.
Width of nose across nostrils	2	2.4
Width of tongue.....	2	2.5
Circumference of chest.....	34.5	37.5
Acromion to styloid process of radius.....	45	45.8
Acromion to external condyle	27	27.8
Olecranon to styloid process.....	23	23
Length of hand to tip of middle finger.....	16.5	18.5
Length of thumb.....	6	6.5
Length of index finger	9	10
Length of middle finger.....	9.5	11
Length of ring finger.....	9	10.1
Length of little finger	7.2	8
Circumference of arm.....	17.8	20
Circumference of forearm.....	20	21
Circumference of wrist	35	14.3
Circumference of hand.....	18	19.5
Anterior superior spine to inner malleolus.....	74	78.5
Anterior superior spine to ext. condyle of femur.	37.5	40
Length of foot	24.7	26.3
Length of big toe.....	7	7.6
Circumference of thigh at middle.....	36	38.5
Circumference of calf.....	29.5	30.5 ¹

On inspecting the mouth it is found that the left alveolar process is fully twice as broad as the right one. The left upper incisors are broader and longer than the right ones, while the difference in the lower incisors is slight. All of the left molars are larger than the right. The left halves of the nose and tongue are distinctly enlarged and the left ear is decidedly larger than the right, as may be seen in the illustrations.

Examination of the internal organs does not show any abnormality; at least, there is no transposition. That the left radial artery is considerably larger than the right seems certain, as the pulse is decidedly fuller on the left side.

The thyroid is exceedingly small, scarcely palpable. There is no substernal dullness to indicate enlargement of the thymus.

The genitalia are rather small, though not abnormally so for his age. The penis is 7 cm. long. Both testicles are descended.

¹ Since this was written the patient has been under observation and was last examined on June 25, 1912. He has grown considerably and the left side of the face and the feet are more prominent than ever. Height now 161 cm. (5 feet 3 inches); circumference of head 58.3 cm.; length of foot, right 28 cm., left 29 cm.; anterior superior spine to inner malleolus right 74 cm., left 78.5 cm.

The tendon reflexes are normal. Motion and sensation are normal. The pupils react normally and the fundi are normal. The facial muscles on the left side appear to functionate normally and react normally to the faradic and galvanic current. A slightly stronger current is, however, required on the left side, probably on account of the increased thickness of the subcutaneous tissue.

X-ray pictures of the head show an apparently normal sella turcica and normal thickness and conformation of the bones. X-ray pictures of the upper and lower extremities indicate that the process of ossification has reached a stage which must be considered normal for his age.

Description of the Skin by Dr. Oliver S. Ormsby.—The entire cutaneous envelope shows abnormalities of different types. The chief changes consist in hyperæmic areas, many of which are so well developed as to constitute mild vascular nævi, the so-called "port-wine" spots; a general mild grade of xerosis on the trunk and extremities; a seborrhea of the face and scalp; on the lower limbs bands and streaks of moderate hyperkeratosis; and, finally, pigment changes.

The entire skin shows a purplish red mottling. On the back, at the junction of the cervical and dorsal regions, is a superficial vesicular nævus, circular in outline, and $2\frac{1}{2} \times 1\frac{3}{4}$ inches in size. This patch is erythematous and occupied by many telangiectatic blood-vessels.

At the lower end of the spine, over the lower dorsal region, a similar area, $2\frac{1}{2} \times 1\frac{1}{2}$ inches, is present. In this region the redness is not diffuse but is made up of several smaller reddish macules. Over the sacral region is a similar one, about 1 inch in diameter.

On the dorsal surface of the left hand quite distinct loss of pigment is noted in areas. Both thighs have the erythematous mottling described above. Below the knees this condition becomes diffuse, the major portion of the skin being pink. Moderate hyperkeratosis is present on the dorsal surface of the left hand. Quite marked xerosis is present.

The skin of the face shows comedones, oily seborrhea, and a few acne papules. The scalp shows oily seborrhea. The latter conditions are more pronounced on the left side. Hypertrichosis is decidedly more marked on the left side.

The mucous membrane of the mouth is slightly cedematous. One small pea-sized venous angioma on the upper lip is present on the affected side.

An interesting feature is the suggestion on the lower limbs of linear naevi, due to the fact that bands of smooth normal skin alternate with bands which are moderately hyperkeratotic. These extend over the entire limb in continuous lines from the hip to the foot.

The entire picture, therefore, presents mild congenital abnormalities.

Diagnosis.—The essential feature in this case is the relative enlargement of the left side of the body, which has existed since birth. The boy's general health is good, and the only trouble caused by the abnormal condition is the mechanical inconvenience of having one leg longer than the other. The first disease that comes to one's mind on considering the case naturally is acromegaly, especially as both feet are enlarged. But one is soon convinced that the resemblance is only superficial. Acromegaly is an acquired condition, and the patient suffering from it is not merely deformed, but actually ill, presenting also some of the symptoms of brain tumor and particularly disturbances of vision, due to the proximity of the hypophysis to the optic chiasm. This boy is deformed from birth and aside from enlargement of the feet does not present the features of acromegaly. The absence of enlargement of the sella turcica, as indicated by the X-ray, and the absence of visual disturbances speak against hypophysis disease, which always exists in acromegaly. (The reported exceptions do not bear close criticism.)

The case, therefore, must be looked upon as a congenital deformity, a hyperplasia or overgrowth of the entire left side, and additional overgrowth of the right foot. That the case is not one of hypoplasia of the right side is plain when we consider that the left side presents many abnormal features, such as the enlargement of the cheek, gums and teeth, and the marked nevoid condition of the skin. The condition may be labelled "unilateral hypertrophy," "unilateral gigantism," or, using a Greek term, "hemimacrosomia."

Cases in the Literature.—A fair number of very similar cases have been reported, so it is possible to make some generalizations. Heredity plays no rôle. The male sex and the right side seem

to predominate. The hypertrophic side is generally the stronger. Nævi and pigmentation of the skin are very frequently present. The hypertrophy mainly involves the subcutaneous tissues, muscles and bones, namely, tissues of mesoblastic origin. In the few cases in which post-mortem examination has been made, no brain or other lesion has been found which throws any light on the cause of the condition. In a few of the cases enlargement of a few fingers and toes on the otherwise normal side was noted, so the enlargement of the entire right foot in the present case is not an absolutely unique feature.

The early literature is fully reviewed in a monograph by Trelat and Monod. Arnheim gives the bibliography up to 1898, and reports the case of a female child seen at the age of four weeks. The entire right side was involved in the hypertrophy. There were telangiectasia of the skin and a nævus pilosus on the back. The girl never learned to walk, and died at the age of $2\frac{1}{4}$ years. Necropsy revealed in still further detail the uniform enlargement of all structures on the right side, and also showed evidence of rickets, bronchiectasis, emphysema, and hypertrophy and dilatation of the heart. The cause of death was bronchopneumonia. Another case with necropsy is related by Sophie Hornstein, that of a girl, $2\frac{1}{2}$ months old, involving the right side.

A recently reported case, with necropsy, is that of Cagiati. A female child which died of enteritis at 11 months showed enlargement of the entire right side from birth. There were nævi of the skin. The brain showed no gross change and the thyroid was normal. The left ventricle was hypertrophied, and the carotid, femoral, radial and other arteries were wider and thicker on the left side. The left lung was larger than the right, and all the bones on the left side were relatively enlarged.

There is a considerable number of clinical reports of very similar cases. Nævoid conditions are the rule. Of special features, it may be mentioned that in Brüning's case, as well as one described by P. Wagner, only the soft parts seemed to be involved. In the former there was syndactylism, and the index and middle fingers on the normal side were also enlarged. Devouges describes a boy, 17 years old, with enlargement of the entire right side, and varices and nævi on the right leg and hand, in which the first three fingers and toes were disproportionately long and the

same fingers and toes on the otherwise normal left side were moderately enlarged. There was no appreciable difference in radial pulse on the two sides.

In Reissmann's case the left side of the head and the right side of the rest of the body were enlarged.

The following cases probably also belong in this group. Foucher's case was one of enlargement of the entire left side, with varices and a condition resembling elephantiasis of the left leg. Two fingers on the left side were disproportionately large. Chassaignac's case was that of a boy, 18 years old, with enlargement of the right side and varices. Wittelshöfer gives a very meagre description, but a good picture of a girl observed in Billroth's clinic. The right arm and leg were enlarged, the first three toes on the right foot disproportionately so, and the second and third toes were grown together. In Fischer's case the hypertrophic right side was the weaker one, and the head not involved, but the usual varicose condition was present. The most recently reported case is that of Max Schiller, of a boy 11 years old, with congenital enlargement of the left side, and also umbilical hernia and undescended testicle.²

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ILLUSTRATIONS.

FIG. 1.—Hemihypertrophy of face.

FIG. 2.—Showing increased length of extremities on left side and tilting of pelvis.

FIG. 3.—Both feet.

² Still later is an exhaustive article by Stier (*Deut. Zeitsch. f. Nervenheilk*, 1912, Vol. 44, p. 21) with review of the entire literature of hemihypertrophy and hemiatrophy.



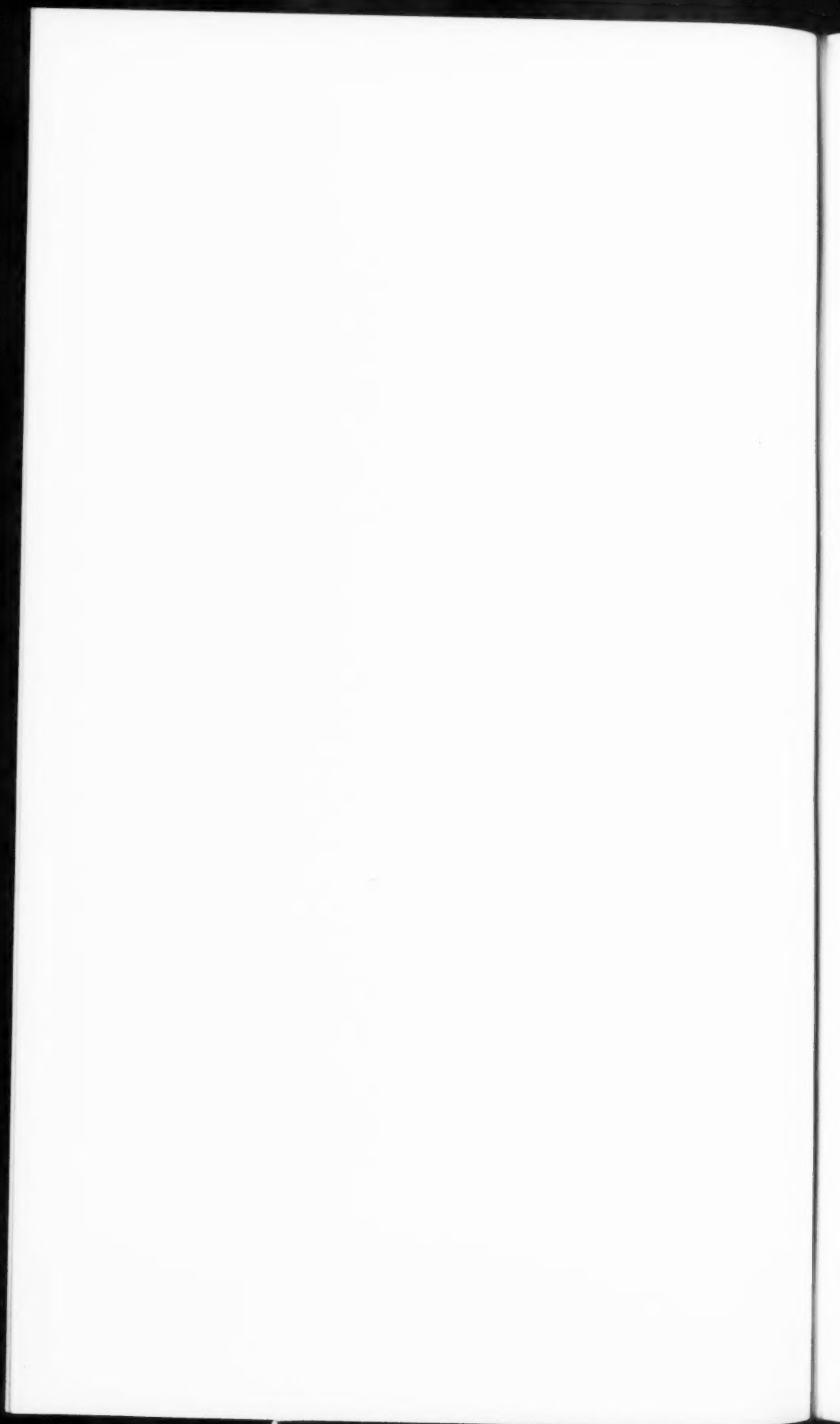
FIG. 1.



FIG. 2.



FIG. 3.



A PLAN FOR INDEXING CASES IN HOSPITALS FOR THE INSANE.

SECOND PAPER.

By WILLIAM A. WHITE, M. D.,

AND

FRANCIS M. BARNES, JR., M. D.

It is now somewhat over a year ago that our first paper appeared in this Journal (1911, LXVII, 597) concerning a scheme which had been adopted at the Government Hospital for the Insane, whereby cases might be catalogued according to diagnosis in such a manner that the clinical records might be rendered more easily and readily accessible for the purpose of subsequent research. In brief, this plan was to classify the cases after the individual's hospital career had been terminated, either by death or discharge, in three main sections: First, the mental diagnosis as made clinically; second, the clinically diagnosed physical condition; and third, the pathologic findings. These three sections, actually constituting three case catalogues, are cross-indexed with each other so that data concerning a given case may be obtained by approaching from any one of the three directions. Regarding the nomenclature, the guiding principle was "*that the term used in each instance, while being as specific as is consistent with facts, shall be broad enough to surely include the condition.*"

During the time since this plan was adopted, experience has brought to light many of the shortcomings and difficulties associated with the practical working of such a cataloguing scheme. It is to the hope that others may gain from this experience that this second paper owes its origin. It has seemed advisable to include, under the second section, the clinical diagnosis, more than the physical disorder related to the mental state. The catalogue is primarily concerned with the form of mental disorders, and considerable confusion and difficulty has arisen by endeavoring to include too much under the mental diagnosis. For instance, in the infective-exhaustive and toxic psychosis, and in that associated with organic diseases of the brain, it is desirable for several

reasons, largely of a practical nature, to record the underlying causal physical disease or toxic agent as a clinical diagnosis. This will become clear on reference to Sections I, II and III of the classification.

The principal difficulty has been with the mental diagnosis. In the first place, no fixed or even approximately definite nomenclature was in use, with the result that a given mental disorder might be characterized by a half dozen of the staff physicians by as many different, though synonymous, diagnoses. To the same physician the constitutional psychopathy of to-day becomes a psychopathic personality to-morrow; or, the precox, *forme fruste*, an abortive or simple precox. To permit an index to express even approximately accurately the diagnostic opinions of a staff comprised of a score or more of physicians, some uniform nomenclature becomes essential. Even though we look upon a classification of mental disorders as a necessary evil, it is obvious that for practical purposes some form of such evil is unavoidable. Then we can only strive to reduce it to the lowest degree.

The classification which is given in the following pages has been formed upon the basis of experience in handling the material of this hospital, primarily considering the mental diagnoses. No pretence of originality is made, hints and suggestions derived from varied sources have been incorporated, without mention, in the several instances. Nor is this proposed as a scientific grouping of mental disorders, utilitarian and practical objects have been the goal sought after throughout its construction. It is fully recognized, however, that perhaps very rarely may the diagnosis of an abnormal mental state be made with immutable finality, and, as a direct corollary to this, that no such scheme of classification can be considered to be permanently fixed or settled. Yet it is necessary from the practical viewpoint to have some skeletal form for guiding purposes, in order that the greatest possible uniformity may be attained in expressing diagnostic opinions. To secure as uniform interpretation as possible, in the more doubtful instances brief explanatory notes have been interpolated.

And, finally, this scheme is to serve merely as an outline and guide, but in each case the mental disorder should be designated, whenever possible, in accordance with the terminology herein employed.

MENTAL DIAGNOSES.

I. INFECTIVE-EXHAUSTIVE PSYCHOSIS:

Owing to the difficulty of determining in many cases at which point the abnormal mental symptoms due to the infective process cease, and those due secondarily to the exhaustion resultant upon the infection begin, it seems desirable to use the broader term infective-exhaustive, looking upon the psychosis as the mental reaction. In many instances, it will be difficult, or even impossible, to be more specific, yet certain quite definite clinical types are recognizable. Likewise it is difficult to separate in every instance the psychosis as associated etiologically with the fever or the infection itself and its consequent secondary exhaustion. We may, however, recognize clinically several fairly well-defined forms:

1. *Febrile Psychosis:*

In certain instances the mental symptoms develop quite clearly in connection with the fever. Such is often the case in typhoid fever, erysipelas, acute articular rheumatism, scarlet fever, small-pox, malaria, cholera and septic diseases. The psychosis may develop at the onset of the fever, when it has reached the fastigium, or during the period of defervescence,

2. *Infection Psychosis:*

Here the mental symptoms may develop more closely in association with the infective process during a comparatively afebrile period. They may be manifested clinically in epileptiform excitements, twilight states, hallucinatory and catatonic conditions, etc. Here too should be included the acute infections having a specific localization in the central nervous system, such as suppurative and tubercular meningitis, hydrophobia, chorea minor, etc.

3. *Acute Confusional Psychosis:*

The so-called amentia of Meynert. The term acute confusional psychosis is preferable and is to be used to designate fairly definite symptom complexes while the term confusional state is reserved to characterize less definite conditions dependent possibly upon various etiologic moments, usually but vaguely determinable and therefore included in a subgroup under the general heading "Undifferentiated Psychosis." (See XVI.)

4. *Symptomatic Psychosis:*

The foregoing subgroups are in a sense symptomatic psychoses (Bonhoeffer) but it is desired to retain this term to characterize those mental disorders manifested as episodes of excitement, depression, delirium, etc., which develop more closely in relation with general or constitutional disorders and diseases of the internal organs. Here we have the cachectic and anemic conditions due to carcinoma, etc., cardiac disease, uremia, diabetes, gastro-intestinal disease, etc.

The classification of Group I is almost entirely of the etiologic type and therefore the causative factor should be recorded in the clinical diagnosis.

II. TOXIC PSYCHOSIS:

Including such as are not due to agencies of the nature of those already included under the above. It is here to be borne in mind that the toxemia often leads to a condition of exhaustion. This, though it may modify the symptomatology, is really but secondary. To employ an additional term to cover this factor, *e. g.*, toxic-exhaustive, is undesirable.

1. Thyreogenic Psychosis:

a. Myxedematous.

b. Exophthalmic.

We (in Washington) meet with so comparatively few instances of thyreogenic psychosis that it seems unnecessary to mention the two types separately in the mental diagnosis—the type is indicated to better advantage in the clinical diagnosis as associated with myxedematous or exophthalmic goiter.

2. Alcoholic Psychosis:

A general term for such cases where though recognized that alcohol is the etiologic agent in the production of the toxic psychosis, yet for various reasons its type cannot be stated. An attempt should be made in every instance to indicate the clinical type.

Among the alcoholic psychoses the more definite clinically recognizable types are:

a. Pathologic Alcoholic Intoxication.

Psychotic states appearing in close association with the acute intoxication and of very short duration.

b. Delirium Tremens.

c. Acute Alcoholic Hallucinosi.

d. Chronic Alcoholic Hallucinosi.

e. Korsakow's Psychosis.

f. Alcoholic Deterioration.

The term deterioration is here used to express more than dementia, *i. e.*, an acquired defect not necessarily predominantly involving the intellectual sphere.

g. Alcoholic Pseudo-Paresis.

h. Alcoholic Paranoid State.

The acute delusional paranoid state as well as Eifersuchtswahn are included within the meaning of this term.

3. (Other) Toxic Psychosis (not included in the foregoing):

Under this general heading, toxic psychosis, include such as are due to drugs, as morphin, cocain, bromin, etc., lead, gas (carbon monoxide, etc.) and foods (ptomaine, pellagra, etc.). It seems best here to mention the toxic agent under the clinical

diagnosis. For example, take a case where morphin had acted as the toxic agent in the production of the psychosis—the mental diagnosis should be “toxic psychosis” the clinical “morphinism.”

III. PSYCHOSIS ASSOCIATED WITH ORGANIC BRAIN DISEASE:

Excepting such clinical entities as paresis, etc., the organic condition of the brain with which the psychosis is associated (symptomatically) should be recorded in the clinical diagnosis.

1. *Chronic Progressive Chorea* (Huntington).
2. *Sclerosis, Multiple.*
3. *Arteriosclerosis, cerebral.*

(These three conditions should be indicated in the clinical diagnosis.)

The psychoses associated with cerebral vascular changes present themselves in several clinical forms which often may be diagnosticated *intra vitam* with a fair degree of certainty. Among these the better recognized may be included under the following subheadings, such subdivision being desired where possible.

a. *Deterioration:*

A more or less generalized vascular disease of the cerebral arteries associated with a lacunar demential process.

As an especial type of “a” we find the group of post-apoplectic deteriorations. These may be associated with various paralyses and other neurologic disturbances which may be recorded in the clinical diagnosis.

b. *Paranoid State.*

c. *Excitement.*

d. *Depression.*

e. *Confusion.*

4. *Brain Syphilis:*

The mental symptoms associated with syphilitic lesions of the brain are varied but possibly clinically there are symptomatologic groupings which may be well differentiated as follows:

a. *Neurasthenic Type.*

b. *Manic (or Depressed) Type.*

c. *Paranoid Type.*

d. *Deteriorating Type.*

e. *Pseudo-Paretic Type.*

Syphilis should be made a clinical diagnosis, but not unless it is directly associated with the mental state. The fact that there is a positive Wassermann in the blood serum is not sufficient evidence on which to base a diagnosis of cerebral syphilis. Clinically we cannot with accuracy do more than recognize the existence of some abnormal process dependent upon syphilis of the brain. The pathological examination alone can define the nature of the anatomical substratum. With such uncertainty and

limitation of clinical possibility it is unwise to attempt clinically any final anatomic correlation.

5. *Neoplasm* (benign or malignant).

IV. TRAUMATIC PSYCHOSIS:

The term should not be employed to characterize such mental states as are produced by injury other than to the head or where this head trauma has merely been an etiologic factor in the precipitation of another definite psychosis, such as paresis, dementia precox, etc.

Clinically we recognize a

1. *Post Traumatic Delirium*.

2. *Post Traumatic Constitution*.

An acquired generalized defect of psychopathic character.

3. *Post Traumatic Deterioration*.

Often accompanied by many evidences of focal lesion such as aphasia, epilepsy, etc.

V. PARESIS:

1. *Adult Form*.

2. *Juvenile Form*.

3. *Tabetic Form* (i. e., tabo-paresis).

VI. PRESENILE AND SENILE PSYCHOSIS:

These are often associated with a physiologic senility, possibly somewhat premature. They need especially to be differentiated from those mentally abnormal conditions associated with arteriosclerosis. Age alone is not to be taken as the sole criterion, some senile psychoses, e. g., Alzheimer's Disease, may have their onset in the fourth decade, while certain of Kraepelin's presenile psychoses may not appear until the sixth. Although probably always associated in some degree with a demential process, all senile psychoses are not necessarily senile dementias. The predominance in some cases of certain symptom complexes makes it advisable to differentiate where possible, certain clinical types of which the following are more common:

1. *Simple Deteriorating Type, or Senile Dementia*.

2. *Presbyophrenic Type*.

Presenting a symptom complex similar to Korsakow's psychosis.

3. *Confusional Type*.

4. *Depressive Type*.

5. *Paranoid Type*.

6. *Excited Type*.

Types 3 to 6 include the socially recoverable forms and do not necessarily lead to rapid dementia and from the practical standpoint, it is of advantage to separate these; the use of these differentiating terms will at least keep records from showing cases of senile dementia discharged as recovered. It is these types which more frequently are confused with arteriosclerotic processes.

VII. DEMENTIA PRECOX:

The type or form should be indicated whenever possible. Also avoid mixture, *e. g.*, hebephrenic and catatonic, one group of symptoms certainly predominates at least.

1. *Hebephrenic Form.*
2. *Catatonic Form.*
3. *Paranoid Form.*
4. *Simple Form.*

This term will include abortive, heboidoform, *forme fruste*, etc., these terms no longer being desirable.

VIII. PARANOIA (Kraepelin).

IX. MANIC-DEPRESSIVE PSYCHOSIS:

The same general instruction regarding types applies here as under Dementia Precox.

1. *Manic Type.*
2. *Depressive Type.*
3. *Mixed Type.*
4. *Circular Type.*

This term to include and take the place of others expressing the same idea such as alternating, *folie circulaire*, *cyclothymia*, etc.

X. INVOLUTIONAL MELANCHOLIA.

XI. DEPRESSION:

Other than that of manic-depressive psychosis or other depressive states, *e. g.*, those occurring in senile psychosis, etc., or depressions not otherwise accounted for.

1. *Simple.*
2. *Psychogenic.*
3. *Hallucinatory.*

Causative factors such as given under I and II are not demonstrable. The onset is generally abrupt. Hallucinations from the onset (usually auditory) are prominent. There is no sensorial clouding. The affect is one of fear and anxiety.

XII. PSYCHONEUROSIS:

This term to include psychasthenic, neurasthenic and angst states (angstneurosis or angstpsychosis), compulsion neuroses, obsessions, phobias, etc.

XIII. HYSTERIA.

XIV. PSYCHOSIS ASSOCIATED WITH EPILEPSY:

Epilepsy is not invariably associated with the occurrence of abnormal mental symptoms and should not be made a mental diagnosis. Associated with epilepsy the more common clinically observed mental abnormalities may be grouped as follows:

1. *Deterioration.*
2. *Excitement* (with or without hallucinations).
3. *Delirium.*
4. *Twilight State* (*Dämmerzustände*, dream or dazed states).

Such terms as psychic and emotional epilepsy should not be used. Also, the other epilepsies, such as hysteroid, senile, alcoholic, arteriosclerotic, should be classed under the psychosis of which they are only an especial symptom.

XV. DEFECTIVE STATE:

Under this general heading are included a number of inborn defective conditions differing essentially in degree only, therefore merging one into the other in such a way that separation is often a matter of great uncertainty. However, along general lines some degree of differentiation is not only possible but also of practical value. Although these individuals from the medical standpoint are mentally abnormal, this does not therefore necessarily mean that they are insane in the legal sense. It is the various acutely manifested mentally abnormal episodes which grow from this defective soil that bring the individual within the purview of the law and make possible a medical certification and legal commitment as insane. The following are the more generally recognized types of defect:

1. *Constitutional Psychopathy:*

More or less ill-balanced individuals usually intellectually bright but with twists and perversions in their mental make-up, commonly referred to as psychopathic personalities, or as exhibiting a constitutional psychopathic state. We have here to especially recognize that we are dealing with persons whose mental organization appears asymmetrical because of excess or diminution of development in one or another direction.

2. *Constitutional Inferiority:*

In comparison with the above we have a more general and uniform deficit in mental endowment and a noticeable restriction of the intellectual capacity. Developing upon the soil of mental instability, perhaps more frequently in the constitutionally psychopathic than the constitutionally inferior, but also in the imbecile and the idiot, we have episodic excitements, depressions, stupors, paranoid states, hallucinatory attacks, etc., which are advisedly recognized as a

3. *Psychosis of Degeneracy:*

a. *Prison Psychosis:*

A psychotic state developing in a degenerative individual, which is to be looked upon merely as an abnormal mental reaction to an especial situation and its attendant environmental conditions.

4. *Imbecility and Idiocy:*

The transition is gradual from the constitutionally inferior to the imbecile and the idiot. The latter two include the coarser grades of defect which render the person dependent because of unfitness for any occupation excepting possibly the simplest kind of labor under direction.

XVI. UNDIFFERENTIATED PSYCHOSIS:

This term to be employed where the amount of data obtained by customarily complete routine examination is still insufficient to permit of a classification under any of the above types. However, in many of these cases, it will be possible to make a symptomatological diagnosis, although such symptoms are not enough to clearly establish the disease entity of which they are a part. Thus while the psychosis cannot be further differentiated, we may yet recognize

1. *Dementia.*
2. *Excitement.*
3. *Depression.*
4. *Confusional State.*
5. *Paranoid State.*
6. *Stupor.*

XVII. UNCLASSIFIED PSYCHOSIS:

In many cases the information available is entirely inadequate and no definite conclusion can be reached. These cases comprise a class which, because of the incomplete records, are of little psychiatric value and may be disposed of under this heading.

XVIII. MISCELLANEOUS:

Those mental disturbances which for various reasons cannot conveniently be grouped under any of the types mentioned but which do not belong in the unclassified or undifferentiated groups, for example, post-operative mental disorders, etc., may be included here.

XIX. NOT INSANE:

This opinion refers only to the condition of the individual while in the hospital, and not what may have been the condition prior to admission. For instance, a person, who according to the records, obviously suffered from an attack of delirium tremens, but from which recovery had taken place at the time of admission to the hospital, should be classified as Not Insane. Mention of the mental disorder presumably existing prior to admission may be made for record purposes, but not as a definite diagnosis.

THE BIOGRAPHY OF A PATIENT WITH PARANOID DEMENTIA PRÆCOX.*

By CHARLES W. BURR, M. D.,

Professor of Mental Diseases, University of Pennsylvania.

I have been somewhat puzzled as to what specific name to give to the insanity from which the patient, whose life history I am about to relate, suffered. I say suffered rather than suffers and speak of him as if dead because, though still living physically, though his heart beats, respiration continues, and his abdominal viscera do their work, though reflex and automatic life remains, his real life is completed: he is a mere dement, mentally dead. Nothing more can happen to him worth adding to his biography, nothing of interest to the psychiatrist or psychologist, save the date of his formal death. Not many years ago he would have been classified by many as a moral imbecile but moral imbecility does not run so quickly into complete dementia: indeed if my conception of it is correct, assuming for the time being that there really is such a thing, its very essence consists in the preservation of good or at least fair intellectual power throughout life with a total absence, or great perversion, of the moral sense, a moral color blindness. Absence and perversion are not the same thing: there are some abnormal people who have no moral sense, who have no conception of right and wrong; there are others who have but their point of view concerning moral questions is entirely unlike that of the normal man; things he regards as wrong they look on as right and sometimes they regard with horror actions that he thinks moral or at the worst trifling lapses. For example, many of the people who dwell all their lives on, or just over, the borderland of insanity adhere closely in their conduct to the tenets of their perverted ideas as to morality. Mr. Day, best known as the author of "Sanford and Merton," was an example of one of those persons who have what one might call an individualistic code of morals. Such people

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are not moral imbeciles, however, yet are recognized by all as being diseased, though in certain directions they may be mentally even brilliant. Many profound students of the subject deny the existence of moral imbecility, as defined above, and maintain that there is always mental, *i. e.* intellectual, defect whenever there is true moral deficiency. Some writers, especially those belonging to the newspaper school of psychologists, believe or rather say (their beliefs are probably as ill defined as their right to an opinion is slight) that most of the world's great conquerors and statesmen were moral imbeciles. According to them the founders of great empires and indeed pretty much everybody who has had success in life's battle lack moral sense. So far as my personal study of the matter goes I am convinced that there are a few habitually criminal and vicious persons who are without moral sense but who yet have fair reasoning power. In such persons total absence of the moral sense is more frequent than its perversion. They have no appreciation of right and wrong rather than a perverted view of what constitutes right and wrong. I have seen a few juvenile criminals of this type, boys who became offenders not from bad environment or vicious training but because they did not possess, nor could there be created in them by education, a sense of right and wrong and who yet could reason fairly well and easily learn school lessons; but in all of them there was defect in all the higher mental faculties. They all lacked the faculty of judgment.

Some would classify him as a true paranoiac but the course of the disease was too rapid. Using the system of classification most in vogue to-day, I have diagnosed the case as one of paranoid dementia præcox. Criticism is frequently made that dementia præcox is not a disease entity, that indeed it is not a real thing but a mere collection of different things, which most usually happen during adolescence. I am not sure that the criticism is not well founded, but putting to one side the rather academic question as to whether dementia præcox is verily a disease or not, it is certainly true that there are a not very small number of the insane who have a history very like that of this patient, namely, outbursts of causeless anger beginning in infancy, inability to learn obedience and self-control, extreme egotism, a total lack of the social instinct, mental precocity, sometimes a congenitally perverted sexual instinct, followed by delusions of persecution and grandeur

and finally dementia coming on in adolescence and rapidly becoming complete. The condition arises without any external cause. It does not need for its development a bad environment and a good environment does not delay its beginning nor retard its course. It does not depend on vicious habits in the victim or stress of life; on the contrary its causes are congenital, if not inherited. The symptoms may begin to appear in infancy, with the first dawning of mental life, or nothing may be noticed till puberty or adolescence. Its analogue in physical disorders is idiopathic muscular atrophy. It seems as if there were a cerebral abiotrophy. The protoplasm of the healthy brain is prepared during intrauterine life to run a certain time and withstand a certain amount of stress without breaking; in the congenitally weak it is only fitted to run a shorter time even under conditions of the lightest stress and may then simply stop, leaving the patient to live indefinitely as a simple dement or imbecile without any preceding period of delusions or hallucinations, confusion or excitement, or it may run prevertedly, causing delusions, etc., for a longer or shorter time before ceasing to work, before dementia supervenes. Just as in the muscular disease atrophy comes on without discoverable external cause and without any muscular stress, so in the mental disease degeneration comes after a shorter or longer time without psychical stress and without external cause. For convenience we need a name for such patients and paranoid dementia præcox is as good as any. It is clinically convenient to separate it from true paranoia in which marked dementia comes on only after many years, even though it may be illogical to say that two things are different only because in the one the final state comes on sooner than in the other. Though I lay emphasis on dementia præcox being developmental I do not mean that all developmental insanity presents the clinical picture of paranoid dementia præcox. Far from it. I am, however, inclined to think that all developmental insanity is essentially one disease, that the different clinical types depend upon somewhat accidental things or else upon peculiarities in the makeup of the individual machine. Much depends upon the definition of the word disease.

All developmental insanity depends ultimately upon prenatal causes, either hereditary or arising during intrauterine life. Both are often difficult to discover. For example, the influence of

heredity in this particular case is hard to determine. So far as known there have been no cases of insanity, epilepsy or marked hysteria in any of the immediate forebears or near kin. On the father's side the family is one of distinction and of considerable intellectual force. It has held a prominent position for several generations. The father is a man of distinction and has no sign of degeneration (I use the word in a biological, not a moral sense) save that he is a sufferer from migraine. He has a somewhat too rigid conscience but no one, save the very few who have studied the matter, will believe that any amount of rigidity of conscience can have an evil influence on the offspring. The mother, whose family also is and has been for several generations far above the intellectual average, is somewhat nervous. This is all I know but there is nothing more difficult in medicine than to get a correct family history. Families forget, children are very properly not told of family skeletons, and often apparently mild ailments and peculiarities in the ancestors are just as bad as more serious afflictions so far as the influence on the offspring is concerned. Peculiarities in the parents which have resulted in no evil to them may yet be signs of instability, which in the child appear in such degree as to produce marked degeneration. An inherited potentiality for good or evil may be intensified or decreased in passing from generation to generation.

I first saw the patient when he was sixteen years old. He had one brother four years, and a sister six years, younger. He was born at term and the labor was normal. In late infancy he began to have attacks of violent causeless anger. He never had any convulsions save that sometimes his anger became almost convulsive and he would throw himself to the ground, shriek, scream and become rigid but the movements were always willed and he never lost consciousness. He never showed, even when a little child, any affection for his mother and always repelled any show of affection on her part. He has always been emotionally indifferent toward his father and has never shown him any respect though he developed delusions of persecution concerning him only long after he began to have delusions about other people and only a short time before he was sent to a hospital for the insane. As a child, but not later, he had some affection for one grandmother and for an old family servant. In childhood he began to show hate

and contempt for his mother and in boyhood to upbraid her and accuse her of injustice and often said she had failed in her duty to him. His letters to her were always full of demands, frequently contained threats, and never showed the slightest filial feeling. His brother he always hated. His sister he liked very much until his final and complete breakdown.

It was impossible to teach him obedience and self-control. On the other hand, he quite early in life showed a strong sense of the sinfulness of lying. In that regard his moral sense was strongly developed. For years he was truthful and scorned to lie. As a boy, though he had no respect for his father, as such, he did have excessive family pride and an even exaggerated opinion of the position his father held in the community in which he lived. He did well at school, so far as lessons were concerned, until his fifteenth year, but he never made any boy friends and as early as his tenth year began to complain that the boys persecuted him. On account of this he was sent from school to school. Though he hated his mother and cared nothing for his father he was very fond of his home as a place. At first I had a rather fanciful suspicion, the effect upon my subconscious mind of rather wide reading on the subject of atavism, that this was an animal instinct, such as cats and certain other animals are said to possess, and had nothing to do with his pathologic state, but, as later knowledge showed, his room, and it was it he cared for, not the home, was bound up with his "system": he regarded his room as a place of refuge from persecution.

When I first saw him his family did not realize that he was mentally diseased but thought he was simply a nervous, ill tempered boy and unjustly blamed themselves, thinking that a more severe, or at least different, upbringing might have changed the course of events. The self-accusation was entirely unjust. No training, no environment, no guidance would have influenced him or his career. His schoolmates realized that he was eccentric but his patent intellectual ability prevented them from recognizing insanity. It would be more accurate to say they felt he was unlike themselves, that something was the matter with him, and neither stopped to think nor cared whether he was insane or not. Healthy boys, being fundamentally animals and not sentimentalists, have an instinctive aversion for the mentally unsound and for the physically

defective which is good for the individual and for the race, but the maudlin sentimentality of modern thought, or rather feeling, which seeks to inculcate the belief that the weak should inherit the earth and the strong have such pity for the weak as to love them and breed with them, tries by preaching to overcome instinct and when it succeeds, breeds degenerates.

The boy himself had, not long before I saw him, told his father that he masturbated and wanted medical aid to help him recover from the habit. It was largely for this he was put in my care. He talked frankly and sensibly to me about the matter and entered on treatment with enthusiasm. He felt the nastiness of the habit very keenly. His intellectual ability along certain lines was good, but he was precocious, mentally lop-sided. He was a curious combination of child and man. He talked, but not frankly, about the persecution he had been subjected to all his life. He said he had not been brought up right, he had never had a fair show, no one treated him right. He was quite bitter against his schoolmates, but gave no specific instance of their persecuting him. He had begun already to regard the most casual and trifling acts of people whom he met as being done to injure him and harmless gestures and words he interpreted as insults. It should be noted that long before any specific delusions developed he was suspicious and thought he was ill treated. He showed indifference for his father and contempt for his mother. He realized that he was "unlike other boys" but did not realize that his own conduct was in any way responsible for the fact that he was not popular with his schoolmates. He had a profound realization of his rights but no realization of a son's duty to a loving father and mother. He was extraordinarily truthful. He would never, at that time, have committed petty theft as so many normal boys, or boys who finally become normal, do during puberty, and did not use profane or obscene language. Many boys pass through a period in which they get pleasure in obscenity. In fact many, if not most, boys at puberty suffer from an attack, which is purely an episode, of emotional and moral unbalance of some kind; but this boy's condition was not a mere episode, it was a step in his development. He was not at this time morbidly religious, though later he had a period of nasty religiosity. He cared nothing for play and the outdoor sports that every healthy boy enjoys and needs. He was

sluggish in all his movements and lacked the unconscious grace of motion of the healthy boy. He was completely egotistical and had absolutely no altruistic feeling. He had the self-consciousness not of shyness but of silly arrogance. He was plainly insane and needed institutional restraint but his parents, hoping against hope, forbade his being confined in an institution.

Several years before one testicle had become atrophied, following an attack of mumps. Its small size distressed him and later he had many hypochondriacal hallucinations concerning it and he connected his sexual habit with it both as a cause and an effect. He examined his genitalia many times daily and saw many changes in them which had no real existence. To him they varied in size, consistency and shape, and were the seat of many different paræsthesias. He saw, when making these examinations, with the mind's eye, not with the physical eye. The disciples of that philosophy which teaches that such mental abnormalities as this boy showed, as well as many other pathologic states, are due to preconscious sexual thought and indulgence and still more to unconsciously repressed sexual desire, and which further teaches that confession is a good therapeutic measure, will be elated to learn that the boy (not at the first visit to me but months later) explained his hate for his mother on the ground that when he was an infant she had perverted him, giving a very explicit account of the matter. Alas for philosophy, the truth was that a short time before he had been reading some wildly fantastic medical articles on the matter, written for popular consumption, and adapted his case to those he read of. A rather superficial psychoanalysis was all that was required to prove the real origin of his delusions on the subject. He hated his mother and reading that there are many mothers who have indecent love for their children, and being still ingenuous enough to believe that what is printed must be true, he held his mother responsible for his own case. I need not say that he was carefully watched in infancy, and whatever sexual thoughts may have perverted the baby mind he, during that period, performed no sexual act. During childhood and until puberty sexuality, so far as a very thorough investigation revealed, played no part in his life.

I sent him to the woods with a young doctor and he led an out-of-door life. At first he improved symptomatically but soon

refused to stay away any longer. His overbearing conduct and cruelty to his younger brother, based on causeless jealousy and envy, made it impossible for him to be kept at home and he was therefore sent to a boarding school. At first he was fairly happy and did well at his lessons. Soon, however, he began to have delusions of persecution about the other boys and ceased to be able to study his lessons well. Still his masters did not suspect insanity. He was sent with a nurse to an out-of-town rest house where at first he was fairly contented but soon his old persecutory delusions returned and he added to them the specific delusion that people were trying to poison him and that his male nurse wanted to do improper things to him. He became more and more hypochondriacal and believed that the natural lumps and ridges on his skull were evidence of disease, were the result of his habit, and were growing daily in size. His inion was quite large and he had picked up somewhere, in reading phrenology, the belief that this indicated perverted desire. No argument could shake his opinion. He also began to complain of pain in the ridges and of general headache. He ran away from the rest house and went to his father's office, begging him to save him (the boy) from his enemies. He came to see me and I allowed him to go home. While there he stayed in his room most of the time, but would occasionally go out for a long walk. He wore an ice cap continuously to relieve the headache, and gave himself up to writing about his "system." He began to smoke and even to drink a little but this was done in a spirit of bravado and from a desire to appear manly rather than because alcohol produced any pleasant effect. He was not one of the type of degenerates who become inebriates or dipsomaniacs. At first he ate with the family but soon would take food only in his room because he believed his relatives wanted to poison him. He finally would eat only boiled eggs, fearing all other food had been poisoned. He read very little though as a younger boy he had been very fond of books. Again he was sent away with a nurse but soon returned home.

The tragedy which had been running over all the years of his life now rapidly approached its climax. His egotism became absolute, delusions of persecution ruled his every act, his moral sense disappeared entirely. He was profoundly hypochondriacal. He would have nothing to do with anyone, was insolent and very

quarrelsome. He ceased to read. He was convinced there was a conspiracy to injure, even to kill, him. He had no thought of anything save to be avenged on his enemies. One day he pulled out a revolver and threatened to kill a servant, saying he had heard enough of her slurring talk about him. He imagined that a sentence spoken by her almost in a whisper to another servant was an insulting reference to him. Probably the lowness of tone excited his suspicion. I was sent for, came, and he gave me a revolver. That afternoon another physician saw him with a view to signing the certificate of insanity. He became violent, drew another revolver, which no one dreamed he possessed, and fired, hitting the doctor in the head. Fortunately the bullet did not penetrate the skull. He was overpowered and removed to an asylum. He had no realization of the seriousness of his act, no knowledge of its wrongfulness. Every man, said he, had a right to protect himself against his enemies. He was then eighteen years old. Mental degeneration went on with great rapidity after his attempt to kill.

When I saw him last, some months ago, he was standing in his room in the asylum, statuesque, mute, arrogant. He would not speak and had not for hours. He was in catatonic stupor. When, hours later, the catatonia passed off he talked grandiloquently. He was the strongest and most beautiful man in the world. We were mere cattle not worth his notice. He did not reason. There was no systematization of his delusions. He was filthy in his habits, obscene in his talk. He has demented more and more since then.

Until a few months before the final crisis he wrote a great deal of characteristic paranoiac matter. He kept a diary in cipher for some months and also wrote an account of his "system." This consisted of an apology for his life, an account of an imaginary, but to him real, empire of which he was the head, and of advice to his parents about how to bring up his little sister, together with accusations against them about how badly they had treated him. The account covered many pages. Though each sentence was intelligible, the whole was incoherent. His letters to his mother were always dictatorial, arrogant and insulting. The early ones were perfectly coherent and showed only contempt but no marked evidence of insanity. Later they were incoherent. In one to his

father he made threats that he would rob the house, run away with the money obtained and never let them know where he was. He threatened to kill if they tried to prevent him from doing as he pleased. His later letters had after his signature the curious symbolic marks and titles that paranoiacs are so fond of and while the earlier ones were neatly written the later ones were smeared, blotted, underscored and capitalized in the characteristic manner of the delusional lunatic.

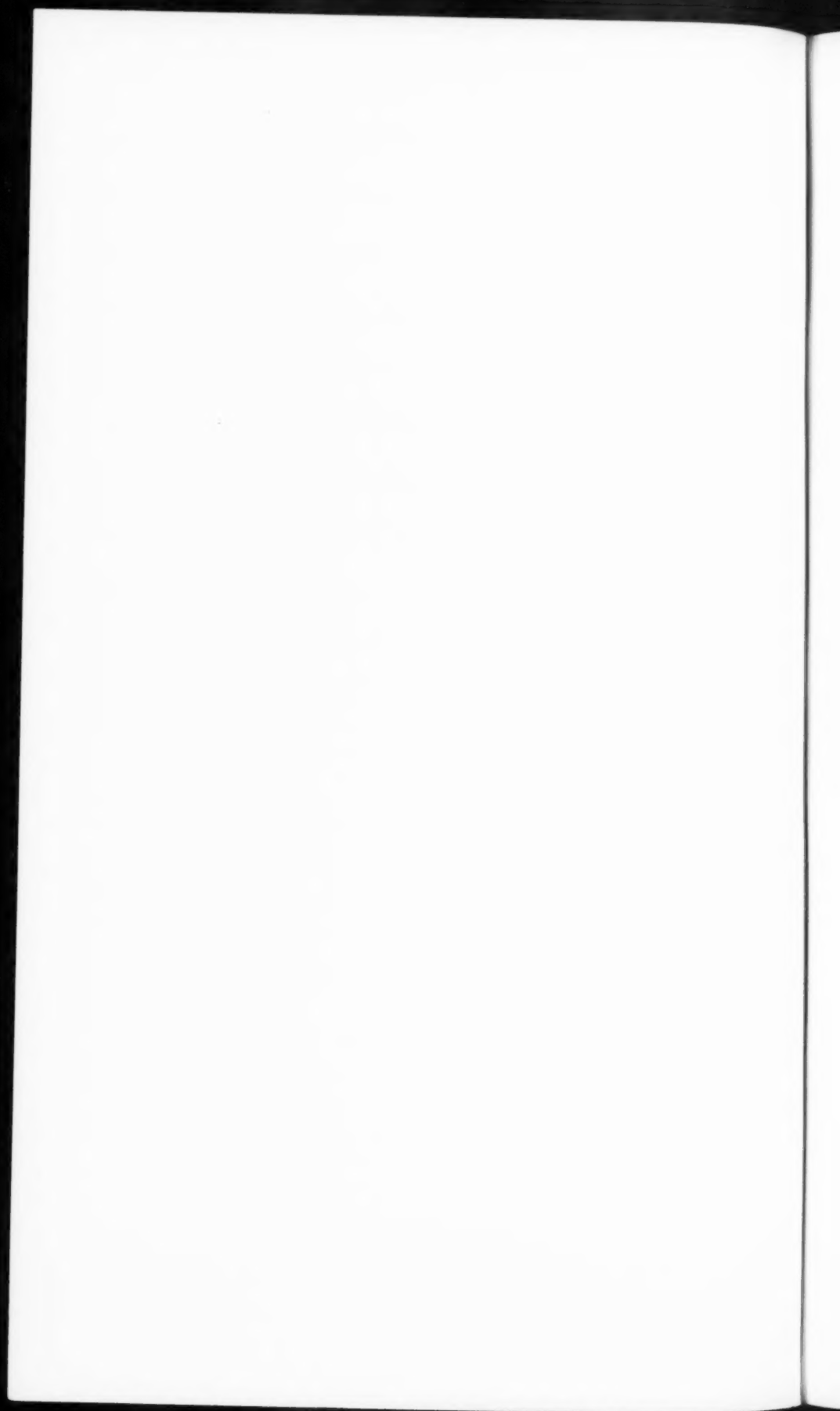
One would need to be a master of language to so describe this case that the reader would have a clear mental picture of it and I have not attempted such a thing. I shall, however, freed from the trammels of a formal case history, speak of some of the things that most impressed me. I was much struck, during the first year I treated him, by the very evident struggle that was going on between health and disease. When I first saw him he had constantly a vague realization that he was in some way mentally ill and sometimes realized clearly that he was in danger of becoming insane. He knew that his point of view of life was different from that of other people and strove at times to assimilate himself to others. Once, for example, I watched him among a crowd of boys, he not seeing me, on the way to a football game. He was manifestly trying to make himself believe that he too was having "a jolly good time." He was trying to have class spirit and all the other things that make for healthy schoolboy life and are vastly more important than book learning. It was pitiable to see the poor boy trying to be a natural boy. There were short periods when his delusions were in abeyance. Delusions in many types of insanity become submerged, for a time, when the patient sees new people and new places and do not reappear until there has been time for them to be attached to the new people. In this patient, even under the ordinary conditions of his life and without change of scene, there were, for a few months, short periods of time when he realized, or seemed to realize, that his delusions were due to illness, were really delusions. Thus he once wrote a letter to me in which there were strong indications of a true self-knowledge. Though there were these seeming fluctuations in the intensity of his disease he did not have, as is very frequently the case in the other forms of dementia præcox, any true intermissions, any real lucid intervals. To use a figure of speech, there seemed to be a

constant fight between darkness and light within him. To use another figure, which may not be altogether figurative, it seemed as if some antidote were intermittently striving to overcome a poison acting on the organ of thought and as if whenever the antidote acted a larger dose of poison were elaborated. As it is very possible that this type of insanity is caused by chronic poisoning due to congenital defect in some of the glandular structures of the body, this figure may really be an explanation and not mere rhetoric. All this, however, still remains unproven.

The case is of interest from a medico-legal point of view. At the time he wounded the physician anyone would have recognized his insanity but had he done the same thing months before, and had a prosecuting attorney wished to convict him, much evidence could have been obtained to prove his sanity. Thus he did well at school, he gave no evidence of delusions to his schoolmasters, several of whom indeed wrote letters in praise of his ability at the time he already had fully developed delusions of persecution, and his conduct outside his father's house was not such as to attract notice. Too often is it forgotten in considering the question of legal responsibility that the insane do many sane things and the sane not a few mad ones.

The sexual element occupied so large a place in his case after puberty that on superficial examination one might be led to believe that masturbation was the cause of his insanity. Really it was symptomatic and not causative. He was not one of those children in whom there is a precocious development of emotional sexual desire before physical maturity of the sexual organs. His insanity was manifest before there was any sexual feeling, and masturbation was the result of the general loss of inhibitory power, which was itself a symptom of his mental state.

The case is an excellent illustration of the fact that mental disorder precedes and is the cause of the development of delusions. The soil must be prepared before delusions can grow. Thus this boy was suspicious long before he had any definite delusion that particular people wanted to injure him. Then there was a long time in which he believed certain persons wished to do him harm before he developed the very specific delusion that they wished to poison him by doing certain specific things. In the popular opinion a man is insane because he has delusions; really he has delusions because he is insane.



A NOTE ON THE PROGNOSTIC VALUE OF HALLUCINATIONS IN THE MANIC-DEPRESSIVE PSYCHOSES.*

By EDMUND M. PEASE, M. D.,
McLean Hospital, Waverley, Mass.

This statistical study was undertaken for the purpose of answering the following debated question: "Do Hallucinations have any effect on the recovery rate in the Manic-Depressive Psychoses?"

To answer this query with some degree of certainty, the case records of 800 manic-depressive admissions to this hospital were closely examined. All cases in which the diagnosis might be questioned were excluded. No case was included in the hallucinating group in which the genuineness of the reported hallucination was at all in doubt. If a case discharged as improved showed by later reports a definite recovery, or, discharged recovered, later showed only improvement, it was tabulated as corrected.

A comparison was first made of the total number of cases with reference to the presence or absence of hallucinations and the corresponding recovery rate as shown in the following table:

TABLE I.

In 800 cases.....	219 or 27.3% had hallucinations.
Of the 219 hallucinating cases.....	122 or 55.7% recovered.
Of the 581 non-hallucinating cases.....	298 or 53.4% recovered.

It was found that these 800 cases represent only 609 persons. The relative frequency of hallucinating persons, with their recovery rate, is shown in the following table:

TABLE II.

Of the 609 persons.....	182 or 29.9% had hallucinations.
Of the 182 hallucinating persons.....	99 or 54.3% recovered.
Of the 427 non-hallucinating persons....	192 or 44.9% recovered.

*The writer wishes to acknowledge here his indebtedness to Dr. E. Stanley Abbot for his many valuable suggestions and constant advice in the preparation of this paper, and also to Dr. F. Lyman Wells for his helpful criticisms.

To eliminate a possible increase in ratio of recoveries from attacks with hallucinations due to some patients having many attacks with hallucinations in each, the 516 persons who had only one admission were next considered, and the result shown in Table III.

TABLE III.

Of the 516 persons.....156 or 30.2% had hallucinations.
Of the 156 hallucinating persons..... 73 or 47.7% recovered.
Of the 360 non-hallucinating persons...145 or 40.2% recovered.

The remaining persons, or those having more than one admission, were then considered in relation to both personal tendency to hallucinate, and to recovery from their attacks. The results are shown in Table IV.

TABLE IV.

93 Persons admitted more than once.

	Persons admitted.		Admissions.		Recovered.		Admissions with hallucinations.		Recoveries in admissions with hallucinations.		Admissions without hallucinations.		Recoveries in admissions without hallucinations.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Persons who hallucinated in any admission.	38	40.8	143	50.3	104	72.7	65	45.4	48	73.8	78	54.6	56	71.8
Persons without hallucinations in any admission.....	55	59.2	141	49.7	96	68.1					141	49.7	96	68.1

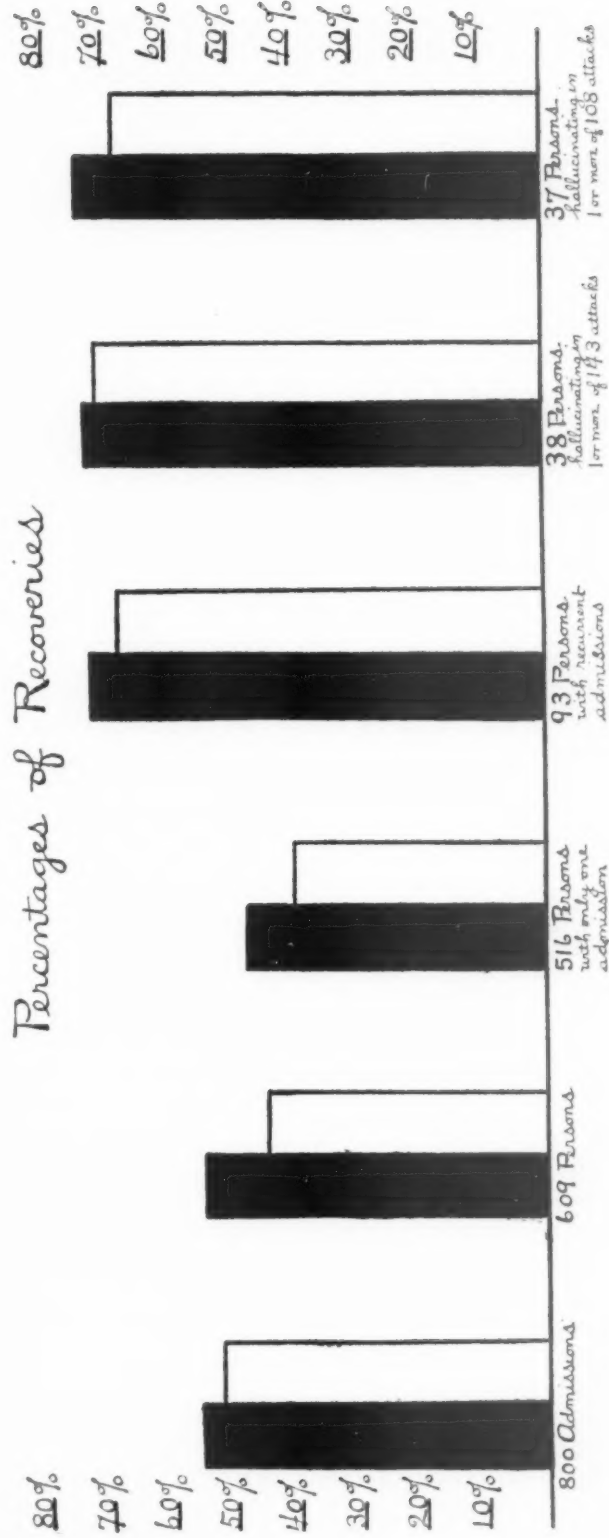
An analysis of the admissions in Table IV shows the following distribution:

TABLE V.

1 person with 35 admissions		
2 " " 10 " each		
1 " " 8 " "		
2 " " 7 " "		
1 " " 5 " "		
9 " " 4 " "		
12 " " 3 " "		
65 " " 2 " "		

The above comparison shows the obvious exceptional status of the one person heading the list.

Percentages of Recoveries



It was thought that the elimination of this case would give a truer average than that shown in Table IV. The following table shows the figures thus reduced.

TABLE VI.

92 Persons admitted more than once after excluding the one exceptional case.

	Persons admitted.		Admissions.		Recovered.		Admissions with hallucinations.		Recoveries in admissions with hallucinations.		Admissions without hallucinations.		Recoveries without hallucinations.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Persons with hallucinations in any attack.	37	40.2	108	43.4	78	72.2	63	58.3	47	74.6	45	41.7	31	68.9
Persons without hallucinations in any attack.	55	59.8	141	56.6	96	68.1					141	56.6	96	68.1

It is interesting to note regarding this one case just eliminated, that his attacks (all manic) began at the age of twenty and were for the most part quite short in duration (3 weeks to 5 months) until the last eight and a half years of life, which were spent continuously at this hospital. During this latter period he had a number of oscillations in condition but did not completely recover, and finally died here. He was able, for thirty-odd years after his attacks began, to keep his position and do effective and satisfactory work in the periods between attacks.

A further consideration of the 93 persons with several admissions shows a small group of 11 persons who had hallucinations in all their 28 admissions.

These 11 persons furnished 20, or 71.4%, recoveries.

The percentages of recoveries in the foregoing tables are represented graphically in the following diagram. The shaded block indicates the percentage of hallucinating attacks or persons, the white block that of the non-hallucinating.

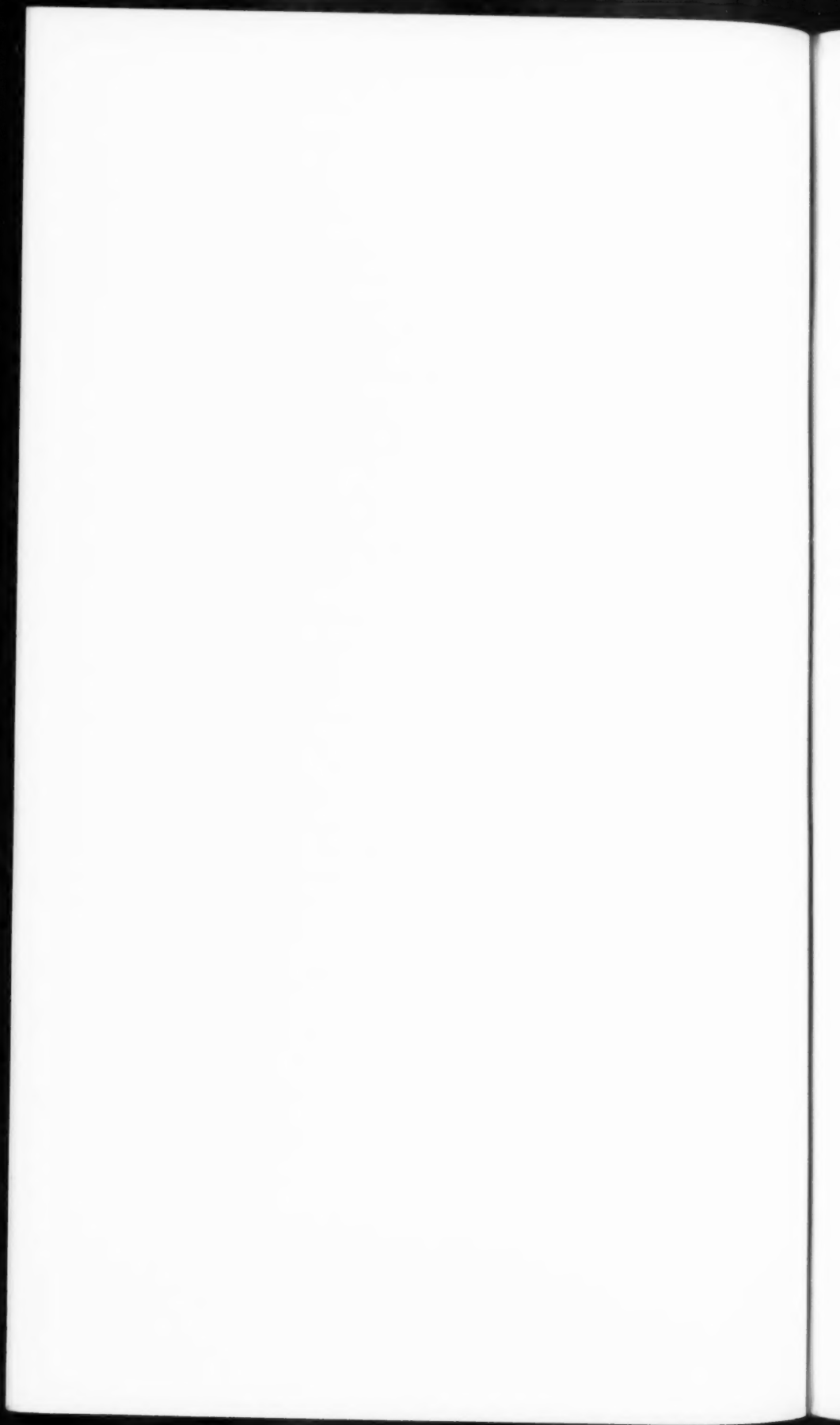
CONCLUSIONS.

1. A slightly larger percentage of *cases* with hallucinations recovered.
2. A slightly larger percentage of *persons* with hallucinations recovered.

3. In persons admitted more than once, the proportion of hallucinating persons was somewhat larger than in those admitted only once, and the recoveries were proportionately more frequent in the hallucinating persons, and in their hallucinatory attacks.

4. So far as hallucinations have any prognostic value at all, they indicate (1) A slightly better prognosis for the attack, and (2) A somewhat greater liability to recurrence of attacks. But (3) the differences in percentage between the hallucinating and the non-hallucinating cases is so slight as to suggest that if data from a much larger number of cases could be obtained these differences might disappear; in which case hallucinations would have no prognostic value.

NOTE.—A study of such factors as kind of hallucination, age at attack, form and duration of attack, etc., is now in process of completion.



ASSOCIATION IN FEEBLE-MINDED AND DELIN- QUENT CHILDREN.

By FREDERIC C. EASTMAN, M. D., AND A. J. ROSANOFF, M. D.

It has been shown that association tests can serve as aids in the diagnosis of insanity.¹ About two years ago a standardized method for testing association was published together with association norms and specimens illustrating various pathological associational tendencies to be observed in insane subjects.² The same standardized method has been employed in the present study of association in feeble-minded and delinquent children.

§ I. DESCRIPTION OF MATERIAL.

The material of this study consists mainly of test records which have been obtained from two hundred and fifty-three subjects, as follows: One hundred and four boys from the House of Refuge, Randall's Island, New York; forty-two boys from the Brooklyn Disciplinary Training School; eight girls from the Brooklyn Training School and Home for Girls; forty-eight boys and forty-seven girls from some public schools in Brooklyn; and two boys and two girls who are private patients.

All subjects were selected on the basis of backwardness in studies as rated by the teachers; the majority are also delinquents, having been committed on charges of truancy, disobedience, running away from home, theft, burglary, assault, etc.

¹ G. Aschaffenburg: *Experimentelle Studien über Associationen*. Kraepelin's *Psychologische Arbeiten*, Vols. I, II, and IV. R. Sommer: *Diagnostik der Geisteskrankheiten*. C. G. Jung: *Diagnostische Assoziationsstudien*.

² G. H. Kent and A. J. Rosanoff: *A Study of Association in Insanity*. Amer. Journ. of Ins., July and Oct., 1910. It would be impossible to avoid frequent reference to this study without reprinting nearly one hundred pages of frequency tables, appendix, discussion of classification, etc. All quotations from this study and all references to it will be indicated by asterisks.

In their ages two hundred and thirty-three of the subjects range from eleven to seventeen years, almost all the remaining twenty being one or two years below or above this range.

It should not be assumed that all these subjects are cases of arrested or retarded development. It may be admitted that difficulty of learning is the best available criterion of mental inferiority or defectiveness in a child; but we have no proof to show that in all our cases the backwardness in studies is due to actual difficulty of learning; on the contrary, such backwardness, as every teacher knows, is not infrequently to be ascribed rather to lack of interest, laziness, etc.

§ 2. ABNORMAL ASSOCIATIONAL TENDENCIES.

An examination of the test records reveals a number of peculiar tendencies by which our subjects as a group differ, on the one hand, from normal subjects, and on the other hand, from insane subjects. These tendencies will be briefly described.

1. *Failure of Reaction.*—General inability to coöperate in the test is met with often enough among insane subjects, and disinclination to coöperate is met with among both normal and insane subjects; yet a subject, normal or insane, who is able and willing to coöperate will seldom fail to give a reaction to any of the stimulus words used in the test. Of our two hundred and fifty-three subjects no less than one hundred and eleven failed to react to one or more of the stimulus words, and the total number of instances of failure of reaction was three hundred and eighty-two.

Failure of reaction is obviously due in the majority of instances to lack of familiarity with the stimulus word. Thus we find words representing abstract, complex, or somewhat uncommon concepts giving rise to failure of reaction much more frequently than other words, while most of the stimulus words on the list, being simple and in common daily use, have not given rise to failure of reaction in any instance. This is shown in Table I in which the three hundred and eighty-two instances of failure of reaction are classified by stimulus words.

It seems, then, that in failure of reaction we have a phenomenon fairly characteristic of arrest of development as distinguished

from both normal mental states and states of acquired mental deterioration.

TABLE I.

justice.....74	command.....8	blossom.....4	river.....1
comfort.....67	bitter.....7	mountain.....3	trouble.....1
mutton.....53	joy.....6	rough.....3	eagle.....1
anger.....46	stem.....5	swift.....3	stomach.....1
citizen.....25	bible.....5	sickness.....2	bath.....1
memory.....15	health.....4	smooth.....2	square.....1
cottage.....15	sheep.....4	foot.....2	loud.....1
religion.....15	priest.....4	king.....2	thief.....1

2. *Non-specific Reactions*.—"In this group are placed words which are so widely applicable as to serve as more or less appropriate reactions to almost any of our stimulus words. That such reactions are, in value, inferior to the remaining group of common reactions, which we have termed, in contradistinction, *specific reactions*, is, perhaps, sufficiently obvious; we shall speak later, however, of their occurrence in both normal and insane cases.

"It is not always easy to judge whether or not a given reaction should be classed as non-specific. A study of our material made with special reference to this type of reactions has enabled us to select the following list of words, any of which, occurring in response to any stimulus word, is classed as a non-specific reaction:

article, articles
 bad
 beautiful, beauty
 fine
 good, goodness
 great
 happiness, happy
 large
 man
 necessary, necessity
 nice
 object (noun)
 people
 person
 pleasant, pleasantness, pleasing, pleasure
 pretty
 small
 thinking, thought, thoughts
 unnecessary, unpleasant
 use, used, useful, usefulness, useless, uselessness, uses, using
 woman
 work

"It should be mentioned that some of these words occur as reactions to one or several stimulus words with such frequency (*citizen—man*, value 27.8 per cent; *health—good*, value 9.4 per cent) as to acquire in such instances a value as high as that of strictly specific reactions" (*).

One thousand normal subjects gave, on an average, 6.2 per cent of non-specific reactions. Insane subjects gave non-specific reactions with approximately the same average frequency. Both normal and insane subjects present considerable individual variation so that in not a few cases we find from 10 to 15 per cent non-specific reactions; it is quite exceptional, however, to find more than that proportion. In our present material non-specific reactions have occurred with an average frequency of 8.4 per cent and no less than thirty-six subjects gave 15 per cent or more.

It would seem, then, that an unduly pronounced tendency to give non-specific reactions is another fairly characteristic manifestation of arrest of development.

3. *Repetition*.—4. *Particles*.—Contraction of the mental horizon, which is characterized by a tendency to repeat many times the same reaction, has been observed in certain states of deterioration, particularly general paresis and epileptic dementia (*). This tendency appears even more frequently in arrests of development. It is, however, not as a rule independent of other tendencies but is connected in some cases with the tendency of giving non-specific reactions and in others with that of giving particles of speech (articles, numerals, pronouns, auxiliary verbs, adverbs of time, place, or degree, conjunctions, prepositions, and interjections).

5. *Total Number of Individual Reactions*.—It has been shown elsewhere that "the one tendency which appears to be almost universal among normal persons is the tendency to give in response to any stimulus word one or another of a small group of common reactions." And it has also been shown that in insane subjects, considered *en masse*, this tendency is markedly weakened (*).

In the present group of subjects we find a similar, though less marked, weakening of this tendency with a resulting increase in the average number of doubtful and individual reactions, as will be seen from Table II.

The individual reactions are made up partly of non-specific reactions, repetitions, particles of speech, partly of normal reactions, so classified in accordance with the appendix to the frequency tables (*). As is the case with the individual reactions of any group of subjects, a large proportion of them fall into the unclassified group. Among these may be distinguished "far fetched" reactions (*), "circumstantial" reactions (*), reactions due to distraction. Truly incoherent reactions are rather exceptional. Neologisms of the senseless type have not occurred in any case.

TABLE II.

	Common reactions.	Doubtful reactions.	Individual reactions.
1000 normal subjects.....	91.7%	1.5%	6.8%
247 insane subjects.....	70.7%	2.5%	26.8%
253 backward and delinquent children.....	84.6%	2.2%	13.2%

The several abnormal associational tendencies mentioned above are not shown by all subjects in any uniform manner. In some subjects one or another of these tendencies predominates while in others several of them are equally apparent. It must be further observed that a good many of our subjects gave normal records; some of these subjects, though for some reason rated as backward by their teachers, are, nevertheless, undoubtedly normal, as is shown by the official records of their school work, industrial work, and conduct; others are rated as backward solely by reason of their being in a class two or three years too low for their age, their work, however, being up to the average of the class; still others, also rated as backward by their teachers, are, perhaps, actually deficient in their studies, but our information concerning them is insufficient to establish this point or to establish the diagnosis of feeble-mindedness.

For a general statistical study of our material we have divided all the test records into four groups: Group I contains all the approximately normal records, that is to say, records with not more than nine individual reactions, not more than fourteen non-specific reactions, and no instances of failure of reaction. Group II contains all records with not less than fifteen non-specific reactions.

Group III contains all records which are not included in Group II and which show more than fifteen individual reactions. Group IV contains all the remaining records, that is to say, those which show instances of failure of reaction, or from ten to fifteen individual reactions, but not over fourteen non-specific reactions.

In Table III are given the figures for the four groups together with some figures for certain groups of normal subjects, which have been introduced for comparison.

§ 3. INDIVIDUAL TEST RECORDS.

The following test records have been selected as presenting typical examples of the various associational tendencies which we have observed in our subjects. The numbers which appear after the reactions indicate in each case the reaction type in accordance with the classification as arranged in the order of preference (*) which is here reproduced for convenience in reference. 0 = failure of reaction. Common specific reactions are not numbered.

1. Non-specific (common).
2. Doubtful reactions.

Individual Reactions.

3. Sound reactions (neologisms).
4. Neologisms without sound relation.
5. Repetition of preceding reaction.
6. Reaction repeated five times.
7. Repetition of preceding stimulus.
8. Derivatives.
9. Non-specific reactions.
10. Sound reactions (words).
11. Word complements.
12. Particles of speech.
13. Association to preceding stimulus.
14. Association to preceding reaction (by frequency tables).
15. Repetition of previous reaction.
16. Repetition of previous stimulus.
17. Normal (by appendix).

18. Association to preceding reaction (without frequency tables).

19. Unclassified.

TABLE III.

Types of reaction.	198 normal subjects. ¹ Selected records containing not over ten individual reactions.	Backward and delinquent children.			
		Group I. 39 subjects	Group II. 30 subjects	Group III. 101 subjects	Group IV. 77 subjects
<i>Common reactions:</i>					
Specific reactions...	89.7%	87.4%	64.5%	78.1%	67.9%
Non-spec. reactions...	4.9%	5.4%	18.4%	7.4%	6.6%
Doubtful reactions...	0.9%	1.4%	2.2%	2.2%	2.7%
<i>Individual reactions:</i>					
Normal reactions ² ...	1.8%	1.7%	2.4%	2.8%	4.1%
Other types	2.7%	4.1%	11.5%	7.8%	16.0%

¹86 adults, common school education; 66 adults, collegiate education; and 46 school children. (*)

²So classed in accordance with the appendix to the frequency tables. (*)

CASE 180A.—J. S. Male. Age 14 years. Pupil in public school. Backward in his studies. Failure of reaction.

Table—eat	Needle—sew	Ocean—sea
Dark—black	Red—flower	Head—horse
Music—phonograph	Sleep—pillow-case	Stove—burn
Sickness—doctor	Anger—mad	Long—man
Man—work	Carpet—floor	Religion—Protestant
Deep—hole	Girl—woman	Whiskey—drink
Soft—cake	High—hill	Child—baby
Eating—fish	Working—shop	Bitter—whiskey
Mountain—hill	Sour—sweet	Hammer—nail
House—live	Earth—round	Thirsty—drink
Black—ink	Trouble—man	City—country
Mutton—... ..	Soldier—man	Square—measure
Comfort—... ..	Cabbage—eat	Butter—bread
Hand—finger	Hard—wood	Doctor—sick
Short—pencil	Eagle—bird	Loud—talk
Fruit—eat	Stomach—belly	Thief—steal
Butterfly—fly	Stem—tree	Lion—animal
Smooth—soft	Lamp—burn	Joy—happy
Command—work	Dream—night	Bed—sleep
Chair—sit	Yellow—flower	Heavy—hammer
Sweet—eat	Bread—eat	Tobacco—smoke
Whistle—talk	Justice—... ..	Baby—child
Woman—cook	Boy—man	Moon—sky
Cold—burn	Light—sky	Scissors—cut
Slow—walk	Health—sick	Quiet—still
Wish—birthday	Bible—write	Green—grass
River—boat	Memory—... ..	Salt—butter
White—cloth	Sheep—animal	Street—walk
Beautiful—flower	Bath—clean	King—president
Window—glass	Cottage—house	Cheese—eat
Rough—wood	Swift—train	Blossom—plume
Citizen—... ..	Blue—color	Afraid—scared
Foot—walk	Hungry—eat	
Spider—web	Priest—minister	

CASE 202.—A. S. Male. Age 14 years. Inmate of House of Refuge. Disobeyed parents, ran away from home. Sixth grade, primary. Record in studies: fair and poor; in industrial work: fair and good; in conduct: excellent and good. Failure of reaction, particles of speech, repetition.

Table—eat	Needle—sew	Ocean—water
Dark—house	Red—flower	Head—hair
Music—play	Sleep—man	Stove—fire
Sickness—he	Anger—	Long—stick
Man—a	Carpet—floor	Religion—
Deep—buried	Girl—dresses	Whiskey—brandy
Soft—apple	High—jump	Child—baby
Eating—bread	Working—man	Bitter—lemon
Mountain—high	Sour—lemon	Hammer—axe
House—high	Earth—dirt	Thirsty—water
Black—clouds	Trouble—man	City—state
Mutton—	Soldier—drills	Square—corner
Comfort—	Cabbage—eat	Butter—bread
Hand—man	Hard—floor	Doctor—medicine
Short—leg	Eagle—fly	Loud—holler
Fruit—eat	Stomach—eat	Thief—rob
Butterfly—flies	Stem—flower	Lion—tiger
Smooth—board	Lamp—burn	Joy—happy
Command—stand	Dream—sleep	Bed—sleep
Chair—sit	Yellow—flowers	Heavy—hammer
Sweet—apple	Bread—white	Tobacco—smoke
Whistle—I	Justice—	Baby—cries
Woman—sweeps	boy—runs	Moon—shines
Cold—to-day	Light—house	Scissors—cut
Slow—work	Health—air	Quiet—good
Wish—home	Bible—book	Green—beans
River—water	Memory—say	Salt—water
White—clouds	Sheep—meadow	Street—gutter
Beautiful—flowers	Bath—Saturday	King—queen
Window—white	Cottage—house	Cheese—butter
Rough—window	Swift—run	Blossom—leaves
Citizen—man	Blue—sky	Afraid—horse
Foot—man	Hungry—bread	
Spider—web	Priest—father	

CASE 36A.—J. C. Male. Age 13 years. Inmate of House of Refuge. Eighth grade, grammar. Record in studies: good, fair, bad; in industrial work: excellent, bad; in conduct: excellent, good, bad. Failure of reaction, non-specific reactions.

Table—red	Needle—thread	Ocean—big
Dark—night	Red—table	Head—big
Music—play	Sleep—lady	Stove—hot
Sickness—woman	Anger—	Long—stick
Man—street	Carpet—nice	Religion—men
Deep—river	Girl—nice	Whiskey—drink
Soft—cushion	High—roof	Child—little
Eating—table	Working—man	Bitter—apple
Mountain—woods	Sour—apple	Hammer—heavy
House—white	Earth—big	Thirsty—child
Black—cat	Trouble—men	City—great
Mutton—	Soldier—marching	Square—paper
Comfort—	Cabbage—green	Butter—yellow
Hand—black	Hard—boy	Doctor—writing
Short—stick	Eagle—black	Loud—hollering
Fruit—apple	Stomach—clean	Thief—gold
Butterfly—yellow	Stem—root	Lion—cats
Smooth—board	Lamp—light	Joy—man
Command—soldier	Dream—man	Bed—sleeping
Chair—nice	Yellow—flower	Heavy—hammer
Sweet—apple	Bread—brown	Tobacco—smoking
Whistle—good	Justice—	Baby—little
Woman—street	Boy—black	Moon—shine
Cold—weather	Light—lamp	Scissors—cut
Slow—boy	Health—man	Quiet—still
Wish—dollar	Bible—read	Green—book
River—deep	Memory—	Salt—sour
White—cat	Sheep—pack	Street—large
Beautiful—flower	Bath—boy	King—rich
Window—nice	Cottage—red	Cheese—white
Rough—dog	Swift—kick	Blossom—red
Citizen—good	Blue—pen	Afraid—robber
Foot—clean	Hungry—man	
Spider—web	Priest—boy	

CASE 130A.—J. D. Female. Age 15 years. Pupil in public school. Backward in her studies. Non-specific reactions.

Table—eat	Needle—sharp	Ocean—large
Dark—night	Red—dress	Head—small
Music—sound	Sleep—night	Stove—iron
Sickness—unwell	Anger—mad	Long—cord
Man—male	Carpet—heavy	Religion—good
Deep—far	Girl—good	Whiskey—good
Soft—sponge	High—house	Child—smart
Eating—lunch	Working—hard	Bitter—medicine
Mountain—high	Sour—apple	Hammer—utensil
House—live	Earth—good	Thirsty—dog
Black—dark	Trouble—sickness	City—large
Mutton—eat	Soldier—brave	Square—table
Comfort—ease	Cabbage—vegetable	Butter—soft
Hand—white	Hard—rock	Doctor—good
Short—small	Eagle—bird	Loud—whistle
Fruit—eat	Stomach—big	Thief—man
Butterfly—beautiful	Stem—short	Lion—fierce
Smooth—velvet	Lamp—gas	Joy—Christmas
Command—obey	Dream—bad	Bed—large
Chair—wood	Yellow—dress	Heavy—iron
Sweet—candy	Bread—supper	Tobacco—good
Whistle—noise	Justice—right	Baby—boy
Woman—tall	Boy—tall	Moon—yellow
Cold—day	Light—good	Scissors—useful
Slow—boy	Health—fine	Quiet—girl
Wish—good	Bible—large	Green—paint
River—swift	Memory—good	Salt—useful
White—chalk	Sheep—animal	Street—long
Beautiful—color	Bath—fine	King—Edward
Window—large	Cottage—small	Cheese—good
Rough—storm	Swift—boy	Blossom—peach
Citizen—man	Blue—ribbon	Afraid—burglar
Foot—small	Hungry—girl	
Spider—insect	Priest—quiet	

CASE 131A.—J. G. Female. Age 19 years. Pupil in public school. Backward in her studies. Non-specific reactions.

Table—brown	Needle—sew	Ocean—sea
Dark—black	Red—color	Head—large
Music—grand	Sleep—think	Stove—fine
Sickness—illness	Anger—mad	Long—head
Man—large	Carpet—color	Religion—church
Deep—sorrow	Girl—good	Whiskey—drink
Soft—smooth	High—man	Child—girl
Eating—food	Working—boy	Bitter—eat
Mountain—large	Sour—apple	Hammer—use
House—burn	Earth—surface	Thirsty—drink
Black—dark	Trouble—lot	City—country
Mutton—cow	Soldier—man	Square—cube
Comfort—home	Cabbage—vegetable	Butter—eat
Hand—large	Hard—apple	Doctor—examine
Short—small	Eagle—bird	Loud—talk
Fruit—food	Stomach—man	Thief—man
Butterfly—bird	Stem—leaf	Lion—animal
Smooth—soft	Lamp—globe	Joy—think
Command—obey	Dream—sleep	Bed—sleep
Chair—use	Yellow—color	Heavy—watch
Sweet—eat	Bread—eat	Tobacco—chew
Whistle—use	Justice—man	Baby—small
Woman—large	Boy—man	Moon—large
Cold—dog	Light—dark	Scissors—cut
Slow—quick	Health—good	Quiet—silent
Wish—thought	Bible—book	Green—color
River—beautiful	Memory—think	Salt—white
White—cloth	Sheep—animal	Street—number
Beautiful—thing	Bath—dog	King—man
Window—glass	Cottage—home	Cheese—eat
Rough—wood	Swift—hard	Blossom—flower
Citizen—man	Blue—color	Afraid—girl
Foot—animal	Hungry—eat	
Spider—animal	Priest—church	

CASE 59A.—D. W. Male. Age 14 years. Inmate of House of Refuge. Larceny. Seventh grade, grammar. Record in studies: good, fair; in industrial work: good; in conduct: good, bad. Non-specific reactions.

Table—eat	Needle—sew	Ocean—water
Dark—light	Red—color	Head—hair
Music—play	Sleep—bed	Stove—fire
Sickness—disease	Anger—good	Long—big
Man—person	Carpet—walk	Religion—must
Deep—low	Girl—person	Whiskey—not
Soft—thing	High—very	Child—man
Eating—mouth	Working—like	Bitter—sour
Mountain—high	Sour—not	Hammer—chop
House—live	Earth—flower	Thirsty—drink
Black—color	Trouble—much	City—houses
Mutton—meat	Soldier—good	Square—thing
Comfort—pleasure	Cabbage—vegetable	Butter—eat
Hand—work	Hard—bad	Doctor—help
Short—long	Eagle—bird	Loud—holler
Fruit—good	Stomach—hard	Thief—bad
Butterfly—insect	Stem—fruit	Lion—big
Smooth—nice	Lamp—light	Joy—good
Command—talking	Dream—sleep	Bed—sleep
Chair—sit	Yellow—color	Heavy—good
Sweet—good	Bread—eat	Tobacco—smoke
Whistle—mouth	Justice—ruler	Baby—small
Woman—person	Boy—person	Moon—shine
Cold—sickness	Light—lamp	Scissors—cut
Slow—bad	Health—good	Quiet—still
Wish—get	Bible—prayers	Green—color
River—water	Memory—good	Salt—sour
White—color	Sheep—wolf	Street—big
Beautiful—nice	Bath—good	King—ruler
Window—see	Cottage—live	Cheese—eat
Rough—hard	Swift—run	Blossom—flower
Citizen—man	Blue—color	Afraid—bad
Foot—walk	Hungry—eat	
Spider—insect	Priest—prayers	

CASE 203.—J. P. Male. Age 15 years. Inmate of House of Refuge. Backward in his studies. Failure of reaction, non-specific reactions, particles of speech, repetition. Twenty-seven individual reactions.

Table—eat	Needle—sew	Ocean—big
Dark—evening	Red—apple	Head—I
Music—playing	Sleep—I	Stove—good
Sickness—boy	Anger—	Long—to-day
Man—see	Carpet—floor	Religion—Catholic
Deep—hole	Girl—see	Whiskey—bad
Soft—banana	High—I	Child—small
Eating—dinner	Working—I	Bitter—
Mountain—high	Sour—pickles	Hammer—nails
House—see	Earth—ground	Thirsty—I
Black—shoes	Trouble—no	City—large
Mutton—	Soldier—I	Square—black
Comfort—	Cabbage—eat	Butter—soft
Hand—two	Hard—rock	Doctor—good
Short—I	Eagle—bird	Loud—sing
Fruit—eat	Stomach—I	Thief—arrested
Butterfly—flying	Stem—apple	Lion—wild
Smooth—paper	Lamp—light	Joy—
Command—captain	Dream—night	Bed—I
Chair—sit	Yellow—banana	Heavy—hammer
Sweet—candy	Bread—eat	Tobacco—smoke
Whistle—I	Justice—	Baby—small
Woman—standing	Boy—there	Moon—light
Cold—to-day	Light—air	Scissors—cut
Slow—obey	Health—I	Quiet—room
Wish—luck	Bible—read	Green—flag
River—boats	Memory—gem	Salt—good
White—air	Sheep—good	Street—large
Beautiful—picture	Bath—I	King—country
Window—pane	Cottage—work	Cheese—good
Rough—dirt	Swift—whip	Blossom—flower
Citizen—man	Blue—sky	Afraid—I
Foot—two	Hungry—I	
Spider—bites	Priest—preacher	

CASE 239.—P. J. Male. Age 11 years. Inmate of Brooklyn Disciplinary Training School. Disorderly conduct. Third grade, primary. General record for studies, industrial work, and conduct: bad, satisfactory. Failure of reaction, non-specific reactions, repetition, particles of speech. Twenty-eight individual reactions.

Table—eat	Needle—sew	Ocean—sea
Dark—night	Red—color	Head—brains
Music—sing	Sleep—night	Stove—hot
Sickness—die	Anger—	Long—day
Man—father	Carpet—stand	Religion—church
Deep—down	Girl—think	Whiskey—drink
Soft—place	High—up	Child—thinking
Eating—food	Working—hard	Bitter—very
Mountain—high	Sour—eat	Hammer—nail
House—inside	Earth—cool	Thirsty—very
Black—cellar	Trouble—prison	City—nice
Mutton—eat	Soldier—killing	Square—big
Comfort—self	Cabbage—eat	Butter—nice
Hand—work	Hard—eat	Doctor—pretty
Short—something	Eagle—flies	Loud—noise
Fruit—eat	Stomach—eat	Thief—robber
Butterfly—see	Stem—flower	Lion—kills
Smooth—ground	Lamp—light	Joy—
Command—give	Dream—things	Bed—sleep
Chair—sit	Yellow—flower	Heavy—very
Sweet—taste	Bread—sweet	Tobacco—chew
Whistle—blow	Justice—	Baby—nice
Woman—see	Boy—nice	Moon—pretty
Cold—its	Light—pretty	Scissors—cut
Slow—very	Health—good	Quiet—person
Wish—something	Bible—read	Green—flower
River—bathing	Memory—flower	Salt—food
White—hair	Sheep—grass	Street—pretty
Beautiful—flower	Bath—take	King—nice
Window—clean	Cottage—nice	Cheese—good
Rough—play	Swift—ball	Blossom—nice
Citizen—	Blue—sky	Afraid—dark
Foot—bad	Hungry—very	
Spider—poison	Priest—nice	

CASE 144A.—F. L. Female. Age 12 years. Pupil in public school. Backward in her studies. Repetition. Thirty individual reactions.

Table—kitchen	Needle—machine	Ocean—church
Dark—house	Red—dress	Head—girl
Music—park	Sleep—bed	Stove—girl
Sickness—hospital	Anger—school	Long—boy
Man—street	Carpet—dining-room	Religion—church
Deep—river	Girl—school	Whiskey—liquor
Soft—pillow	High—parlor	Child—girl
Eating—table	Working—factory	Bitter—pickles
Mountain—country	Sour—pickles	Hammer—nails
House—street	Earth—mountain	Thirsty—water
Black—dress	Trouble—home	City—country
Mutton—butcher	Soldier—army	Square—room
Comfort—bed	Cabbage—vegetable	Butter—bread
Hand—child	Hard—meadow	Doctor—hospital
Short—sentence	Eagle—park	Loud—teacher
Fruit—store	Stomach—girl	Thief—room
Butterfly—meadow	Stem—leaf	Lion—park
Smooth—school	Lamp—parlor	Joy—Christmas
Command—school	Dream—sleep	Bed—room
Chair—kitchen	Yellow—butterfly	Heavy—weight
Sweet—fruit	Bread—delicatessen	Tobacco—match
Whistle—factory	Justice—teacher	Baby—home
Woman—teacher	Boy—street	Moon—sky
Cold—cough	Light—hospital	Scissors—dress
Slow—school	Health—hospital	Quiet—mountain
Wish—doctor	Bible—church	Green—grass
River—mountain	Memory—girl	Salt—delicatessen
White—dress	Sheep—meadow	Street—park
Beautiful—summer	Bath—room	King—throne
Window—school	Cottage—country	Cheese—delicatessen
Rough—boys	Swift—teacher	Blossom—summer
Citizen—America	Blue—dress	Afraid—room
Foot—child	Hungry—appetite	
Spider—web	Priest—church	

CASE 186A.—F. G. Male. Age 17 years. Private patient. Feeble-minded. Failure of reaction, repetition, particles of speech. Thirty individual reactions.

Table—eat	Needle—stocking	19	Ocean—boat
Dark—rain	Red—fire	19	Head—turn
Music—playing	Sleep—wake	15	Stove—open
Sickness—vomiting	Anger—mad	2	Long—slow
Man—walks	Carpet—creep	15	Religion—talk
Deep—hole	Girl—run	2	Whiskey—drink
Soft—velvet	High—jump	2	Child—run
Eating—bread	Working—hard	19	Bitter—taste
Mountain—top	Sour—taste	19	Hammer—get
House—table	Earth—ground	15	Thirsty—drink
Black—coat	Trouble—naughty	15	City—go
Mutton—meat	Soldier—walk	11	Square—corner
Comfort—	Cabbage—eat	1	Butter—eat
Hand—catch	Hard—heavy	11	Doctor—Smith
Short—quick	Eagle—fly	2	Loud—talk
Fruit—eat	Stomach—pain	0	Thief—run
Butterfly—catch	Stem—leaf	2	Lion—run
Smooth—velvet	Lamp—light	12	Joy—play
Command—do	Dream—think	13	Bed—go
Chair—sit	Yellow—stone	6	Heavy—iron
Sweet—eat	Bread—eat	12	Tobacco—smoke
Whistle—blow	Justice—	15	Baby—sleep
Woman—walk	Boy—run	13	Moon—out
Cold—cough	Light—feather	6	Scissors—get
Slow—walk	Health—look	15	Quiet—slow
Wish—go	Bible—read	19	Green—grass
River—water	Memory—talk	6	Salt—get
White—pillow	Sheep—run	6	Street—run
Beautiful—pillow	Bath—swim	15	King—talk
Window—open	Cottage—door	12	Cheese—eat
Rough—run	Swift—run	15	Blossom—out
Citizen—	Blue—flag	15	Afraid—get
Foot—run	Hungry—eat	15	
Spider—creep	Priest—preach	15	

CASE 205.—D. G. Male. Age 17 years. Inmate of House of Refuge. Burglary. Third grade, primary. Record in studies: good; in industrial work: excellent; in conduct: excellent. Failure of reaction, repetition. Thirty individual reactions. (This subject is foreign born; although he can carry on an ordinary conversation without difficulty yet it is possible that some of the peculiarities in his test record may be due to imperfect command of English.)

Table—eat	Needle—sew	Ocean—river
Dark—gas	Red—necktie	Head—clean
Music—play	Sleep—bed	Stove—cook
Sickness—bed	Anger—	Long—stick
Man—works	Carpet—clean	Religion—
Deep—hole	Girl—nice	Whiskey—drink
Soft—hand	High—girl	Child—small
Eating—good	Working—money	Bitter—burning
Mountain—high	Sour—things	Hammer—nails
House—clean	Earth—clean	Thirsty—drink
Black—cat	Trouble—good	City—United States
Mutton—	Soldier—fight	Square—
Comfort—	Cabbage—eat	Butter—bread
Hand—clean	Hard—apples	Doctor—sick
Short—thing	Eagle—clean	Loud—boy
Fruit—clean	Stomach—clean	Thief—robber
Butterfly—good	Stem—	Lion—murderer
Smooth—things	Lamp—light	Joy—
Command—	Dream—sleep	Bed—sleep
Chair—clean	Yellow—necktie	Heavy—carry
Sweet—things	Bread—clean	Tobacco—chew
Whistle—blow	Justice—	Baby—small
Woman—kind	Boy—clean	Moon—sky
Cold—day	Light—see	Scissors—cut
Slow—lady	Health—good	Quiet—keep
Wish—apples	Bible—read	Green—color
River—swim	Memory—	Salt—lake
White—face	Sheep—	Street—clean
Beautiful—necktie	Bath—take	King—captain
Window—clean	Cottage—clean	Cheese—eat
Rough—house	Swift—	Blossom—flower
Citizen—	Blue—apple	Afraid—frightened
Foot—clean	Hungry—eat	
Spider—clean	Priest—church	

CASE 11A.—G. G. Male. Age 16 years. Inmate of House of Refuge. In lowest class in institution. Dull and stupid. Has deaf and dumb brother. Failure of reaction, non-specific reactions, particles of speech, repetition. Thirty-seven individual reactions.

Table—small	6	Needle—small	1	Ocean—pretty	1
Dark—ferry	19	Red—boy	6	Head—big	
Music—instrument		Sleep—boy	5	Stove—small	1
Sickness—headache		Anger—cranky		Long—arm	
Man—little	19	Carpet—small	1	Religion—Protestant	
Deep—heart	19	Girl—small	1	Whiskey—wine	
Soft—boy	6	High—boy	6	Child—big	6
Eating—breakfast		Working—bed	19	Bitter—taste	
Mountain—high		Sour—apple		Hammer—big	6
House—small	1	Earth—smooth		Thirsty—water	
Black—dog		Trouble—eyes	19	City—light	19
Mutton—cow		Soldier—I	12	Square—boy	6
Comfort—	9	Cabbage—bad	1	Butter—dinner	
Hand—cut	19	Hard—I	12	Doctor—now	12
Short—arm		Eagle—bird		Loud—talk	
Fruit—banana		Stomach—pain		Thief—I	12
Butterfly—black		Stem—small	1	Lion—big	
Smooth—paper		Lamp—big	6	Joy—happy	1
Command—give		Dream—good	1	Bed—sleep	
Chair—sit		Yellow—handkerchief	19	Heavy—boy	
Sweet—food		Bread—dinner		Tobacco—Long Tom	17
Whistle—I	12	Justice—sentence	17	Baby—small	1
Woman—small	1	Boy—small	1	Moon—pretty	9
Cold—warm		Light—school	13	Scissors—big	6
Slow—work	1	Health—well		Quiet—boy	
Wish—home		Bible—Sunday		Green—dollar	17
River—smooth		Memory—gems	19	Salt—water	
White—dog	15	Sheep—big	6	Street—light	
Beautiful—bird	19	Bath—Saturday	19	King—big	6
Window—small	1	Cottage—work	9	Cheese—Thursday	19
Rough—horse	19	Swift—horse		Blossom—flower	
Citizen—civil	2	Blue—tie		Afraid—bad	1
Foot—small	1	Hungry—now			
Spider—web		Priest—good	1		

CASE 105A.—E. M. Male. Age 15 years. Inmate of House of Refuge. Burglary. First grade, grammar. Rated by teacher as backward; actual record, however, shows: in studies: excellent, poor, bad; in industrial work: fair, good, excellent; in conduct: excellent, bad. Test record normal.

Table—eat		Needle—pin		Ocean—water	
Dark—black		Red—white		Head—memory	
Music—instrument		Sleep—awake		Stove—heat	
Sickness—wealth		Anger—mad		Long—shout	
Man—woman	1	Carpet—floor		Religion—Catholic	
Deep—high		Girl—boy		Whiskey—drunk	
Soft—hard		High—house		Child—baby	
Eating—drinking		Working—slow		Bitter—salt	
Mountain—hill		Sour—sweet		Hammer—nails	
House—foundation		Earth—round		Thirsty—drink	
Black—white		Trouble—useful	9	City—state	
Mutton—eating		Soldier—army		Square—round	
Comfort—peace		Cabbage—fruit		Butter—soft	
Hand—arm		Hard—soft		Doctor—examine	17
Short—long		Eagle—bird		Loud—shout	
Fruit—vegetables		Stomach—insides	2	Thief—liar	
Butterfly—insect		Stem—root		Lion—animal	
Smooth—rough		Lamp—oil		Joy—pleasure	1
Command—attention		Dream—sleep		Bed—sleep	
Chair—table		Yellow—white		Heavy—hard	
Sweet—sour		Bread—eating		Tobacco—smoke	
Whistle—horn		Justice—truth		Baby—child	
Woman—man	1	Boy—girl		Moon—light	
Cold—warm		Light—dark		Scissors—cut	
Slow—quick		Health—wealth		Quiet—still	
Wish—something		Bible—history		Green—color	
River—water		Memory—sense		Salt—sour	
White—black		Sheep—flock		Street—walk	
Beautiful—fine	1	Bath—washing		King—queen	
Window—glass		Cottage—house		Cheese—butter	
Rough—soft		Swift—quick		Blossom—flower	
Citizen—man	1	Blue—yellow		Afraid—fear	
Foot—toe		Hungry—starved			
Spider—insect		Priest—minister			

CASE 48A.—J. R. Male. Age 15 years. Inmate of House of Refuge. First grade, grammar. Rated by teacher as backward; actual record, however, shows: in studies: excellent, fair; in industrial work: excellent, good; in conduct: excellent, bad. Test record normal.

Table—eat	Needle—sharp	Ocean—sea
Dark—color	Red—color	Head—eyes
Music—singing	Sleep—night	Stove—cool
Sickness—death	Anger—mad	Long—thin
Man—being	Carpet—rug	Religion—Jewish
Deep—hollow	Girl—female	Whiskey—wicked .....10
Soft—feeling	High—tall	Child—baby
Eating—appetite	Working—bakeshop .....17	Bitter—taste
Mountain—rocks	Sour—taste	Hammer—heavy
House—building	Earth—crust	Thirsty—water
Black—color	Trouble—mischief	City—Pittsburgh .....17
Mutton—meat	Soldier—general	Square—angle
Comfort—home	Cabbage—vegetable	Butter—soft
Hand—palm	Hard—stone	Doctor—medicine
Short—small 1	Eagle—bird	Loud—soft
Fruit—apple	Stomach—belly	Thief—awindle .....17
Butterfly—insect	Stem—thin	Lion—animal
Smooth—thin	Lamp—flame	Joy—happy 1
Command—order	Dream—sleep	Bed—mattress
Chair—sit	Yellow—color	Heavy—hard
Sweet—taste	Bread—food	Tobacco—smoking
Whistle—organ .....17	Justice—right	Baby—infant
Woman—female	Boy—man 1	Moon—planet
Cold—weather	Light—feather	Scissors—cut
Slow—weak	Health—body	Quiet—still
Wish—dreaming 2	Bible—book	Green—color
River—water	Memory—mind	Salt—tasteless
White—color	Sheep—animals	Street—avenue
Beautiful—nice 1	Bath—water	King—crown
Window—pane	Cottage—house	Cheese—American
Rough—hard	Swift—quick	Blossom—flower
Citizen—countryman	Blue—color	Afraid—beating .....17
Foot—heel	Hungry—eat	
Spider—insect	Priest—bishop	

CASE 104A.—G. M. Male. Age 22 years. Born in Russia. Inmate of House of Refuge. Fifth grade, grammar. Rated as backward by reason of being in a class too low for his age. Record is as follows: in studies: good; in industrial work: good; in conduct: excellent. Test record normal.

Table—eat	Needle—steel	Ocean—water
Dark—light	Red—color	Head—body
Music—hear	Sleep—lay 2	Stove—fire
Sickness—doctor	Anger—mad	Long—big
Man—human	Carpet—lay	Religion—holy
Deep—low	Girl—woman 1	Whiskey—drink
Soft—feel	High—up	Child—baby
Eating—stomach	Working—occupation	Bitter—taste
Mountain—high	Sour—taste	Hammer—tool
House—place	Earth—round	Thirsty—drink
Black—color	Trouble—fight	City—place
Mutton—meat	Soldier—man 1	Square—round
Comfort—nice 1	Cabbage—vegetable	Butter—eat
Hand—right	Hard—ball	Doctor—sick
Short—long	Eagle—bird	Loud—vapor .....19
Fruit—eat	Stomach—heart	Thief—man 1
Butterfly—animal	Stem—leaf	Lion—animal
Smooth—rough	Lamp—light	Joy—ride
Command—order	Dream—something	Bed—sleep
Chair—sit	Yellow—color	Heavy—load
Sweet—taste	Bread—eat	Tobacco—smoke
Whistle—noise	Justice—something .....15	Baby—child
Woman—lady	Boy—man 1	Moon—light
Cold—hot	Light—dark	Scissors—cut
Slow—fast	Health—good 1	Quiet—still
Wish—something	Bible—read	Green—color
River—water	Memory—good 1	Salt—taste
White—color	Sheep—animal	Street—block
Beautiful—nice 1	Bath—boy	King—man 1
Window—look	Cottage—house	Cheese—eat
Rough—hard	Swift—quick	Blossom—flower
Citizen—man 1	Blue—color	Afraid—brave
Foot—leg	Hungry—eat	
Spider—insect	Priest—man 1	

CASE 62A.—C. H. Male. Age 18 years. Inmate of House of Refuge. Disobedience toward parents. Seventh grade, grammar. Rated as backward by reason of being in a class too low for his age. Record in studies: good, fair; in industrial work: good, fair; in conduct: good. Test record normal.

Table—measure19
Dark—color
Music—piano
Sickness—measles
Man—officer17
Deep—river
Soft—powder19
Eating—cake
Mountain—country
House—home
Black—shoes
Mutton—meat
Comfort—warm
Hand—ball
Short—pin
Fruit—orange
Butterfly—insect
Smooth—glass
Command—go
Chair—sit
Sweet—candy
Whistle—noise
Woman—mother
Cold—winter
Slow—snail
Wish—want
River—fish
White—snow
Beautiful—flowers
Window—look
Rough—file
Citizen—man1
Foot—sox17
Spider—web1

Needle—sew
Red—apple
Sleep—night
Anger—lion
Carpet—designs2
Girl—sister
High—chimney17
Working—father
Sour—pickle
Earth—dirt
Trouble—fight
Soldier—war
Cabbage—vegetable
Hard—stone
Eagle—bird
Stomach—eating
Stem—flower
Lamp—light
Dream—sleep
Yellow—orange
Bread—butter
Justice—judge
Boy—brother
Light—daytime
Health—doctor
Bible—God
Memory—remember
Sheep—flock
Bath—water
Cottage—door
Swift—race
Blue—gum19
Hungry—food
Priest—chapel1

Ocean—ships
Head—hair
Stove—fire
Long—miles
Religion—God
Whiskey—intoxicating
Child—baby
Bitter—medicine
Hammer—nails
Thirsty—drink
City—New York
Square—Madison
Butter—bread
Doctor—sickness
Loud—talk
Thief—steal19
Lion—show
Joy—fun
Bed—sleep
Heavy—lead
Tobacco—smoke
Baby—mother
Moon—night
Scissors—cut
Quiet—night
Green—color
Salt—tomatoes17
Street—block
King—England
Cheese—nice1
Blossom—lilacs
Afraid—cat1

CASE 133A.—S. P. Female. Age 14 years. Pupil in public school. Rated as backward by teachers. No detailed information available. Test record normal.

Table—eat
Dark—night
Music—song
Sickness—ill
Man—father
Deep—distance
Soft—easy
Eating—motion
Mountain—hill
House—building
Black—color
Mutton—eat
Comfort—sitting
Hand—helping
Short—distance
Fruit—apple
Butterfly—bird
Smooth—soft
Command—doing
Chair—sitting
Sweet—taste
Whistle—noise
Woman—girl
Cold—shivering
Slow—running2
Wish—thought1
River—water
White—color
Beautiful—pretty1
Window—looking
Rough—hard
Citizen—man1
Foot—standing
Spider—creeping1

Needle—sewing
Red—color
Sleep—motion19
Anger—mad
Carpet—covering
Girl—child
High—distance
Working—action2
Sour—sweet
Earth—black
Trouble—uneasy
Soldier—brave
Cabbage—eatable
Hard—soft
Eagle—bird
Stomach—eating
Stem—handle
Lamp—light
Dream—sleep
Yellow—rose
Bread—eatable
Justice—right
Boy—man1
Light—dark
Health—sick
Bible—book
Memory—think1
Sheep—animal
Bath—water
Cottage—house
Swift—running
Blue—color
Hungry—feeling
Priest—bishop1

Ocean—stream
Head—brains
Stove—heat
Long—short
Religion—character19
Whiskey—drink
Child—baby
Bitter—sweet
Hammer—noise
Thirsty—drinking
City—country
Square—round
Butter—yellow
Doctor—gentleman
Loud—soft
Thief—steal
Lion—animal
Joy—happy1
Bed—sleep
Heavy—light
Tobacco—smoke
Baby—child
Moon—sun
Scissors—cut
Quiet—noise
Green—color
Salt—taste
Street—avenue
King—head
Cheese—eatable
Blossom—flower
Afraid—quiet1

CASE 115A.—C. H. Female. Age 15 years. Pupil in public school. Rated as backward by teacher. No detailed information available. Test record normal.

Table—cat	Needle—point	Ocean—water
Dark—night	Red—dress	Head—body
Music—melody	Sleep—dog .....19	Stove—iron
Sickness—ill	Anger—cat	Long—board
Man—male	Carpet—covering	Religion—church
Deep—water	Girl—young	Whiskey—distillery
Soft—earth	High—mountain	Child—baby
Eating—food	Working—child .....19	Bitter—horrible .....2
Mountain—stone	Sour—milk	Hammer—iron
House—abode	Earth—dirt	Thirsty—water
Black—dark	Trouble—sickness	City—people .....1
Mutton—meat	Soldier—man .....1	Square—wood
Comfort—rest	Cabbage—vegetable	Butter—salt
Hand—body	Hard—wood	Doctor—physician
Short—small .....1	Eagle—bird	Loud—holler
Fruit—eatable	Stomach—body	Thief—steal
Butterfly—insect	Stem—flower	Lion—animal
Smooth—paper	Lamp—chimney	Joy—gladness
Command—order	Dream—sleep	Bed—mattress
Chair—sit	Yellow—color	Heavy—box
Sweet—fruit	Bread—flour	Tobacco—smoke
Whistle—noise	Justice—court	Baby—child
Woman—girl	Boy—male	Moon—sun
Cold—air	Light—color	Scissors—cut
Slow—easy	Health—sickness	Quiet—sound
Wish—watch	Bible—book	Green—color
River—water	Memory—mind	Salt—white
White—cloth	Sheep—animal	Street—houses
Beautiful—girl	Bath—girl .....15	King—man .....1
Window—glass	Cottage—house	Cheese—butter
Rough—paper	Swift—fast	Blossom—flower
Citizen—man .....1	Blue—color	Afraid—scared
Foot—man .....1	Hungry—eating	
Spider—insect	Priest—clergy	

§ 4. ASSOCIATION IN NORMAL CHILDREN.

The findings in cases of arrested or retarded development naturally raise the question: At what age in childhood or in youth do the associational tendencies, as they are observed in normal adults, become fully developed, and what is the rate and manner of their development? Although we have collected a considerable number of records of tests made upon normal children, we have, unfortunately, not enough such material to afford a full answer to this question.¹ We find, however, on examining a small number of records (fifteen records obtained from children under eight years of age and fifteen from children over ten years of age) that in children under eight years of age some of the associational tendencies resemble those of older subjects who are feeble-minded, while children over ten years of age furnish records much like

¹ The need of normal standards of association for the various ages of childhood is obvious. Arrangements have been made to secure material for constructing such standards.

those of normal adults. It would seem, further, that while failure of reaction and the tendency to give undue numbers of individual reactions appear in the younger children as prominently as they do in feeble-minded subjects, or even more so, the tendency to respond by non-specific reactions which is so frequently observed in feeble-minded subjects, is in young children so slight as to be entirely negligible, being even far below the average for normal adult subjects.

The findings of the small group of normal children are given in Table IV.

TABLE IV.

Types of reaction.	Children under 8 years of age.	Children over 10 years of age.
Specific reactions.....	59.7%	85.5%
Non-specific reactions.....	2.9%	6.3%
Doubtful reactions.....	3.6%	0.8%
Individual reactions.....	22.9%	6.6%
Failures of reaction.....	10.9%	0.8%

§ 5. CONCLUSIONS.

States of arrested mental development present certain fairly characteristic associational tendencies.

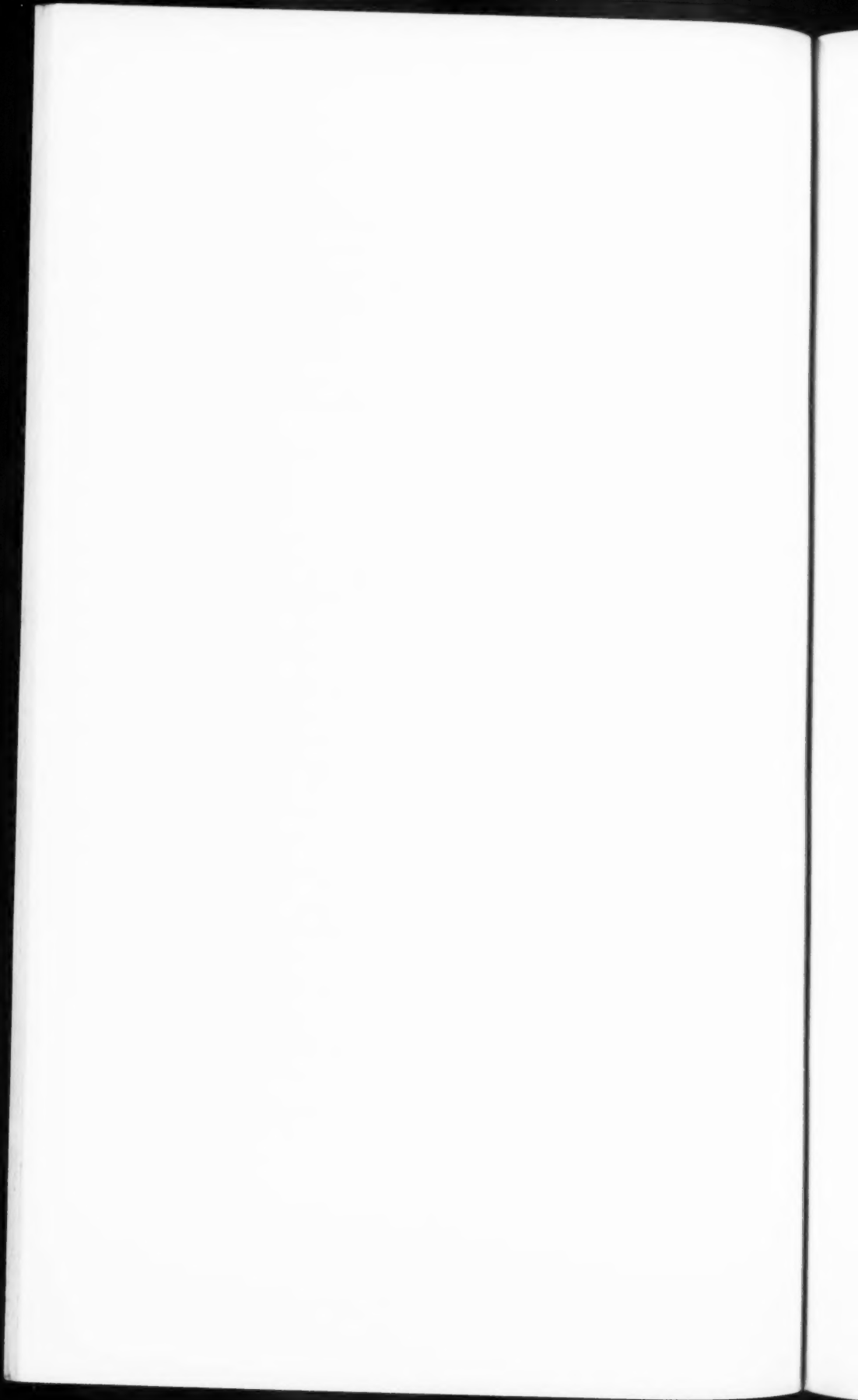
These tendencies are characterized mainly by failures of reaction, non-specific reactions, and certain types of individual reactions.

The association test, as employed in the present study, is an aid in the diagnosis of feeble-mindedness.

ACKNOWLEDGMENTS.

We acknowledge with pleasure our indebtedness to Dr. Grace Helen Kent from whom we received a great deal of assistance in the course of this study.

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THE CLINICAL INTERPRETATIONS OF THE SEROLOGICAL CONTENT OF THE BLOOD AND CEREBRO-SPINAL FLUID, WITH SOME REFERENCE TO THE CYTOLOGY AND CHEMISTRY OF THE LATTER, IN MENTAL DISEASES.*

By MORRIS J. KARPAS, M. D.,

*Assistant Resident Alienist, Bellevue Hospital, New York. Formerly
Second Assistant, Manhattan State Hospital, New York.*

(From the Clinical Department of Manhattan State Hospital.)

INTRODUCTION.

In the study of the interpretation of clinical phenomena, the laboratory forms an important adjuvant. In the pre-Wassermann epoch cytological and chemical examination of the cerebro-spinal fluid aided us in understanding certain types of organic reactions and in making finer differentiations. Recent researches in serology have furthered our knowledge of clinical forms of organic psychoses and obscure nervous affections. The invaluable studies of Plaut, Nonne, Holzmann, Marie, and scores of others have thrown much light on modern psychiatry and neurology. Space does not permit one to review exhaustively the literature on the subject.

In this communication the writer desires to set forth the results of his investigations which were undertaken during the year of 1911 in conjunction with Dr. D. M. Kaplan and Dr. L. Casamajor, of the New York Neurological Institute, New York City. The laboratory work was done in the New York Neurological Institute by Drs. Kaplan and Casamajor. Brief reference only to the technique of the Wassermann reaction and the method of the chemical and cytological examination could be made here, and for more complete knowledge of the subject the reader is referred to the original communication of Dr. Kaplan and Dr. Casamajor,

* Paper read in part at the New York State inter-hospital meeting held at Manhattan State Hospital, Ward's Island, New York City, January 25-26, 1912.

which is published in Archives of Internal Medicine, Vol. 9, pp. 262-272 (Feb., 1912).

The following methods were employed:

THE WASSERMANN REACTION.

The original Wassermann technique was used, plus the Landsteiner modification. The dose of cerebro-spinal fluid was 0.5 cubic centimeter. The controls were known positive and negative sera, amboceptor efficiency, antigenic interference and auto-inhibition. Standardization was performed on the day of the testing of the sera. Only unequivocal positive results were considered. However, weakly positive, nearly positive, or almost complete inhibition were not included among the positive results, but were regarded as negative.

THE SPINAL FLUID.

The cells were counted by the Fuchs-Rosenthal method. In view of the fact that some fluids contain substances which are capable of digesting cells, it is necessary to count the cells on the same day they are obtained; in some of our cases the fluids were examined twenty-four or forty-eight hours later—the fluids were kept in the refrigerator. To determine the globulin content, Kaplan's method was employed. This consists in using gradually diminishing quantities of cerebro-spinal fluid from 0.5 cubic centimeter to 0.1 cubic centimeter, increasing the smaller quantities to 0.5 cubic centimeter with distilled water. The tubes are heated to boiling and three drops of a five per cent solution of butyric acid added. To this is added 0.5 cubic centimeter of a saturated solution of ammonium sulphate, allowing the solution to flow under the spinal fluid very gently by holding the tube almost horizontal. The diameter of the tubes used is one centimeter. When the globulin is excessive in amount, a ring is obtained in the various tubes. If this be very great, it may be obtained in the tube containing but 0.1 cubic centimeter of fluid with 0.4 cubic centimeter of water. For instance, where this excess is not very marked, the ring is not obtainable with the diluted fluid. The ring is usually seen twenty minutes after the addition of the ammonium sulphate, and only those tubes are considered as containing an excess of globulin that show a thick granular ring.*

The reliability of the technique cannot be questioned, although mistakes in the course of laboratory process are liable to occur and at times are unavoidable.

The writer's part in these investigations was purely clinical; he was responsible for the selection of the clinical material and for the diagnostic classification and correlation of the clinical findings with the laboratory results. Three hundred cases were available for our investigations. However, only two hundred

*Furnished by Dr. D. M. Kaplan.

twenty-two cases were selected for our studies. We were forced to eliminate certain cases in which the diagnoses were not very clear.

We may divide our material into two main groups: first, laboratory findings presenting specific pathological phenomena; and, second, laboratory findings without abnormal manifestations. The first group includes general paralysis, cerebro-spinal syphilis, and tabes. The second group consists of organic psychoses of a non-luetic nature, toxic psychoses, epileptic psychoses, and functional psychoses.

FIRST GROUP.

A. GENERAL PARALYSIS.

According to many investigators, serological, chemical, and cytological findings, in general paralysis, are of definite value. The Wassermann reaction is especially of great interest. It is maintained by many that in all cases of general paralysis both the blood and fluid show complement deviation. However, in the literature the results of different investigators are varied. Plaut in a very recent communication compiled the statistics of the various investigators, but accepted only those which were free from criticism as far as the method and technique of the Wassermann were concerned. He collected seven hundred ninety-three sera and eight hundred fifty-four cerebro-spinal fluids of general paralytics; ninety-two per cent of the sera and eighty-nine per cent of the fluids gave a positive reaction. The serum reacts with greater regularity than the fluid and these observations have been substantiated by more recent workers, especially by Boas and Neve, of Copenhagen. The French investigators claim that the serum in paresis reacts less positively than the fluid, but Plaut maintains that in such cases the error should be attributed to laboratory technique. In Plaut's experience, a negative serum reaction in paresis is very rare; of three hundred twenty cases, only two were negative. Edel's, Nonne-Holzmann's, Bendixsohn's, Kafka's, Donath's, Marinesco's, and Boas and Neve's records reveal one hundred per cent of complement deviation in general paralysis. Only nine of Plaut's two hundred seventy-six cases of paresis gave a negative Wassermann reaction of spinal fluid, and in one of them the serum showed a negative reaction. Ac-

cording to the French observers, the Wassermann reaction bears some relation to the course of general paralysis: In the early stages, the serum is usually positive; in the fully developed stage, both serum and fluid are positive, and in the last stages of the disease, the fluid alone gives a positive reaction. Plaut does not adhere to this view and he declares most emphatically that in the incipient stage of general paralysis both the cerebro-spinal fluid and serum show complement deviation, and, doubtless, this phenomenon can be observed before the clinical symptoms become fully developed. According to his experience, should the reaction be weak in the early stages of paresis, it remains so *usque ad finem*. Many observations tend to show that a weak complement deviation is suggestive of a remission or a stationary course of disease.

Such observers as Aldt, Eichelberg and Pförtner, and Kafka, saw a positive Wassermann reaction in the fluid, but not in the serum. The following table will show the results of the various observers:

	General Paralysis.			
	Positive.		Negative.	
	Liquid.	Blood.	Liquid.	Blood.
Zalociecki.....	8	42	4	2
Smith-Candler.....	59	..	5	..
Bendixsohn.....	8	14	1	0
Eichelberg-Pförtner	16	14	0	2
Kafka.....	52	8	6	3
Rossi.....	15	15	0	0
Nonne-Holzmann	22	23	1	0
Edel-Lesser.....	..	64	..	1
Donath.....	..	17	..	0
Höhne.....	..	24	..	6
Marinesco.....	32	35	3	0
Plaut.....	64	89	1	0

We had one hundred cases of general paralysis; seventy-two were fully developed and the diagnosis was undoubted; twenty-two cases of general paralysis in the last stage; and in six cases the diagnosis was unquestionable, but nevertheless, the laboratory findings presented paradoxical results.

a. *Seventy-two fully Developed Cases of General Paralysis.*—Forty-nine of the seventy-two cases showed a positive Wassermann reaction in the blood and fluid. Globulin excess was also

demonstrable in all of them. In all instances, except one, lymphocytosis was present. In that case there were only three lymphocytes per cubic millimeter. In some cases lymphocytosis was as high as two hundred forty-eight, one hundred twenty-six, and one hundred five per cubic millimeter. The average cell-count was forty lymphocytes per cubic millimeter. In five cases polynuclear leucocytes were observed; the number varied between three and twelve. Of these forty-nine cases, forty-four were cerebral form, three tabetic, and two mixed form.

It is extremely interesting to note that in only twelve cases a positive history of syphilis was obtained; in twenty-two cases the history was suspicious, and in fifteen cases luetic infection was denied.

In seven cases the Wassermann test was positive in the blood but negative in the fluid; one of these cases was re-examined and no complement deviation was observed in either the blood or fluid. In all cases, except two, globulin was increased. Lymphocytosis was demonstrated in six out of seven cases. In the negative Wassermann case globulin was also absent, and it is important to note that the patient was treated with salvarsan shortly before the examination of the blood and fluid. The lymphocytes varied between fifteen and one hundred nine per cubic millimeter, the average being forty. In only one case four polynuclear leucocytes were recorded.

Of these seven patients a history of syphilis was elicited in four; in two, syphilis was suspicious; and in two, no luetic infection could be determined. Five cases were cerebral form, two tabetic form of paresis.

In four cases the Wassermann test was positive in the fluid, but the blood was not examined. Globulin and lymphocytosis were determined in all of them, the average cell-count being thirty-two lymphocytes per cubic millimeter. In one instance only, plasma cells were seen. In one case there was a positive history of syphilis, in two suspicious, and in one negative. All of these cases were cerebral form.

In nine cases the Wassermann test was negative in the blood and positive in the fluid; in one case globulin was weakly positive, and in another, globulin was not obtained; in the remaining seven cases globulin was present. The lymphocytes ranged between

fifteen and eighty-one per cubic millimeter, averaging about forty-one; in two cases plasma cells were found, and in one instance polynuclear leucocytes were in evidence. In six cases a history of syphilis was obtained, in three it was suspected, and one, denied. All of them were cerebral form.

In three cases the Wassermann reaction was not elicited in the fluid or serum; one of these patients was re-examined and at this time Wassermann test was negative in the serum, but positive in the fluid. In two cases only the globulin was negative. The cells varied between thirteen and eighty-eight per cubic millimeter, the average being forty-three. In all these cases a certain history of syphilis could not be obtained. These cases were cerebral form.

b. *Twenty-two Cases of General Paralysis in the Last Stage.*—In fourteen out of the twenty-two cases a positive reaction in the blood and fluid was determined, and a globulin increase was present. The lymphocytes varied between twelve and one hundred fifty-eight cells per cubic millimeter, the average being fifty-seven. In four cases polynuclear leucocytes were observed, ranging from one to forty-five per cubic millimeter.

Only three patients admitted syphilis; in five syphilis was not determined, and in six there was a suspicion of luetic infection. Thirteen were cerebral and one tabetic form.

One case showed a negative Wassermann in the blood and fluid, and globulin was not in excess; a second specimen of the fluid and blood was obtained and the results were again negative. In this particular case the first cell-count was three and the second was twenty-three lymphocytes per cubic millimeter. The case is no doubt one of general paralysis, although a history of syphilis could not be satisfactorily established. This case was cerebral form of paresis.

In seven cases the Wassermann test was negative in the serum and positive in the blood. One of these patients was re-examined and similar results were obtained. The cell-count varied between five and forty-nine, averaging about twenty-one. In four cases there was a history of syphilis; in two, syphilis was very suspicious, and in one, denied. Five cases were cerebral and two tabetic form of paresis.

c. *Cases in which the Diagnosis of Paresis is Undoubted; however, Laboratory Findings did not Support the Clinical Diagno-*

sis.—We had seven cases of general paralysis in which the diagnosis could not be questioned; nevertheless, the laboratory report was atypical, but by reason of the fact that the clinical phenomena were well defined, the diagnosis of general paralysis was retained in spite of the negative laboratory findings. It will not be amiss to give a brief outline of these cases:

CASE NO. 1.—A. S. Admitted Dec. 7, 1910, æt. 50, male, white, married. Syphilis not determined. Physically patient shows irregular pupils which did not react to light; tremor of tongue and fingers; over-active knee jerks; ataxic gait and station; writing and speech defect.

The mental status: Slow development, progressive and gradual mental decline; at present patient shows marked dementia, his speech is so defective that he is unable to coöperate with the examiner. He usually lies in bed, wets and soils himself, and leads a vegetative existence. The findings were as follows:

	First report.	Second report.	Third report.
Serum.....	Negative.	Negative.	Negative.
Fluid.....	Negative.	Positive.	Negative.
Globulin.....	Negative.	Positive.	Negative.
Cells.....	Five.	Nine.	Five.

CASE NO. 2, with autopsy.—R. L. Admitted June 15, 1911, æt. 58, American, male, white. No history of syphilis; chronic alcoholic. The development of the psychosis was not well determined, probably of about one year's duration.

When admitted to this hospital, physical examination showed unequal and slightly irregular pupils, which reacted sluggishly to light; active knee jerks; coarse tremor of both hands; slight slurring speech, and some writing defect.

Mentally, the patient was euphoric, gave expression to a few grandiose ideas, declared he had sixty million dollars; was rather boastful in his demeanor; he was poorly oriented, and gave a very meager and inconsistent account of himself; retention was defective.*

	First report.	Second report.
Serum.....	Negative.	Positive.
Fluid.....	Negative.	Positive.
Globulin.....	Negative.	Positive.
Cells.....	Seven.	Twenty-eight.

* His mental dilapidation was gradual and progressive, and he died August 15, 1911. Autopsy showed the usual histologic picture of general paralysis.

CASE No. 3.—C. S. Admitted Dec. 23, 1910, æt. 57, German, married, history of syphilis, habits moderate, laborer.

For about three or four years prior to his admission to the hospital, patient had trouble with his gait and was forced to walk backwards while descending stairs. He complained of shooting pains in his back and legs; at this time he expressed ideas of grandeur. For the past year he did odd jobs and could not hold regular positions. His conduct was erratic and his memory was considered poor. Shortly before his commitment he had convulsions.

Here physical examination showed sluggish pupillary reaction; some deafness; ataxic gait; ataxic station; coarse tremors of facial muscles and fingers.

Mentally, patient was rather dull, inclined to be irritable; had ideas of jealousy; was fairly well oriented; his retention was poor and likewise his memory was not good.

At the present time patient is quiet, manifests no interest in the general affairs of life, usually remains seated in one place, and only at times will he do a little light work. He is oriented, gives an account of himself, and few date discrepancies are elicited, which are not very grave. He wears a mask-like expression. He states that he is not insane and attributes his trouble to his wife, and accuses her of being untrue to him.

Physical condition at present: Unequal pupils which are irregular in outline and react to light sluggishly, especially the right one; knee jerks are over-active and Achilles reflex is present; there is no Romberg, there are no tremors; no apparent writing defect or speech defect. He is not incontinent.

	First report.	Second report.	Third report.
Serum.....	Negative.	Negative.	Positive.
Fluid	Negative.	Negative.	Positive.
Globulin	Negative.	Negative.	Positive.
Cells.....	None.	Five.	Eight.

CASE No. 4.—C. H. Admitted May 15, 1911, æt. 54, Austrian, male, white, waiter, single. History of syphilis not determined.

Physically, he showed the following: irregular small pupils which did not react to light; absent knee and Achilles jerks; coarse tremor of both

	First report.	Second report.	Third report.	Fourth report.
Serum.....	Negative.	Negative.	Positive.	Positive.
Fluid	Negative.	Suspicious.	Positive.	Positive.
Globulin	Negative.	Negative.	Positive.	Positive.
Cells.....	Five.	Twenty-one.	Five.	Eleven.

hands; slurring speech and markedly defective writing; gait and station ataxic.

The mental picture is one of marked mental dilapidation with very grave memory, retention and orientation defect. At one time he had a few grandiose ideas and in the early beginning of the disease his mood was one of exaltation.

CASE NO. 5.—J. E. Admitted April 23, 1910, æt. 48, Ireland, history of syphilis, alcoholic, married, gradual onset with peculiar behavior and defective memory.

Physical condition: Ataxic gait and station; slurring and ataxic speech; small pupils which do not react to light; over-active knee jerks; writing defect and speech defect.

Mentally, patient shows marked dementia without trends; he is unable to give an account of himself because his speech is so markedly defective and also because he is so demented.

	First report.	Second report.	Third report.
Serum.....	Negative.	Negative.	Negative.
Fluid.....	Negative.	Negative.	Negative.
Globulin.....	Negative.	Negative.	Negative.
Cells.....	Fourteen.	Four.	Three.

CASE NO. 6.—J. M. Admitted Sept. 22, 1910, æt. 44, married, syphilis not determined, temperate.

About seven months prior to admission he became paralyzed in both legs, and at the same time began to have dizzy spells and headaches. Soon paralysis disappeared, but he had difficulty in descending the stairs. However, off and on, he would get an attack of paralysis. Three weeks before commitment he began to worry, thought his wife would leave him, and attempted suicide. He grew restless and excited, and had to be committed.

In the hospital, physical examination revealed irregular, unequal pupils, with a limited range of light reaction; deep reflexes exaggerated, especially the knee jerks, which were unequal; tremors of both hands, tongue and at times facial muscles; speech and writing defect; gait and station ataxic; Wassermann in the blood and serum negative; globulin negative, three lymphocytes per cubic millimeter.

Another extremely interesting case came under our observation which at one time was regarded as one of general paralysis, although the laboratory findings were negative; however, autopsy showed that it was a case of arteriosclerosis, not of syphilitic genesis.

Patient was admitted to the hospital June 10, 1909, æt. 42, American, Negro, janitor, married, habits moderate.

It was said that the patient had dizzy spells since the age of 27. About 18 months prior to his admission to the hospital he became dizzy and talked at random. His speech was thick and it was thought that he had at that time a paralytic stroke. Soon he improved and was able to attend to his work. In the early part of June, 1909, he became again unconscious and was unable to use his body. On the fourth day he became excited, talked unintelligently, and was then sent to the hospital.

Upon admission here, physically he showed exaggerated deep reflexes, sluggish pupillary reaction, scars of old ulcers on legs, and some speech defect.

Mentally he was elated, poorly oriented, at times his answers were irrelevant; he gave a very poor account of himself and his memory, both for remote and recent past, was very defective. In general he appeared rather sluggish in comprehending questions, and indeed at times he could not understand the meaning of a simple question. Soon after his admission he became more quiet and was better oriented, but the intellectual defects stood out prominently in the foreground.

After some residence in this hospital the patient was discharged on contract with a diagnosis of general paralysis.

March 22, 1911, he was readmitted, and at that time examination showed coarse tremor of facial muscles and fingers, exaggerated knee jerks, marked arteriosclerosis, and pupils of a doubtful reaction.

Mentally, the patient was dull, but rather euphoric. His replies were not to the point, and he was mentally deteriorated, which was evidenced in memory and judgment. His speech was slurring and sticking. He was unable to write his name and only made a few illegible scrawls. June 8, 1911, he died.

It is very important to note that in this case Wassermann test was negative in the blood and fluid; there was no globulin. Unfortunately, the fluid was contaminated with blood, but in spite of that no lymphocytes were demonstrable; there were one hundred twelve red cells per cubic millimeter.

Autopsy in this case showed no evidence of paresis. The histologic picture was one of arteriosclerosis of a non-luetic origin.

B. CEREBRO-SPINAL SYPHILIS.

Plaut was the first one to call attention to the fact that in cerebro-spinal syphilis, irrespective of the pathological process—meningitic, gummatous, or endarteritic form—the *Wassermann reaction is positive in the serum and negative in the fluid*. According to this author, *this is an important point in making the differentiation between general paralysis and syphilis of the central nervous system.*

In Plaut's monograph we find eighteen cases of cerebro-spinal lues which he divides into three groups: fourteen cases gave negative reaction of the spinal fluid, but a positive serum reaction; three cases with positive reaction in both serum and spinal fluid; and one case in which cerebro-spinal fluid and serum were negative. In a more recent contribution, Plaut reported thirty-seven cases of cerebro-spinal syphilis, and in only four fluids the Wassermann test was weakly positive. Plaut is of the opinion that in border-line cases, where the diagnosis lies between general paralysis and cerebro-spinal syphilis, the Wassermann test is of doubtful value, and great caution should be exercised in interpreting results. A marked positive reaction of the fluid argues in behalf of general paralysis; a negative fluid reaction does not necessarily rule out general paralysis, for there are cases on record in which the fluid was negative. If both the fluid and serum be negative, cerebro-spinal syphilis might be considered.

Nonne and Holzmann examined the sera in twenty-two cases and found negative Wassermann reaction in two instances; and of twenty-seven fluids in only one complement deviation was present. Saathoff's twenty-five cases of syphilitic brain and cord disease—fifty per cent of which were confirmed by autopsy and treatment—showed a positive Wassermann reaction in the serum. Eichelberg and Pförtner demonstrated a positive reaction in the serum of their seven cases, and six fluids reacted negatively. They maintain that a positive fluid is suggestive of paresis. In Bendixsohn's eight cases complement deviation in the serum was elicited, and two fluids were positive; one of these developed into an undoubted case of paresis and the other one was rather under suspicion. Of Zalociecki's three cases, two showed a negative Wassermann test, but they had been treated with anti-syphilitic remedies. Also Sonnenberg had one negative serum in his seven cases. However, of Rheinhardt's forty cases, sixty per cent were positive in the serum, and Pürkhauer's five out of eleven cases gave negative results. In Kafka's seven cases complement deviation was demonstrable in the serum and in one fluid only.

In cerebro-syphilis, as in general paralysis, lymphocytosis is usually present; in more acute processes the cell-count is high and frequently polynuclear leucocytes are observed. Globulin content, especially in acute conditions, is invariably increased.

Our material consists of ten cases, two of which came to autopsy; in the others the diagnosis of cerebral syphilis clinically is rather suggestive. In this communication only brief mention will be made of them. In another contribution, the author will give the clinical data more in detail. We may divide our cases into three groups: First, gummatous; second, meningeal; and third, endarteritic.

I. GUMMATOUS.

(One case with autopsy.)

CASE I.—The patient was fifty years of age; intemperate. The development of the disorder was not known. Physically he showed irregular pupils which reacted to light; exaggerated knee jerks; tenderness over nerve trunks; some arteriosclerosis; no ankle clonus or Babinski; albumen with pus and epithelial cells in the urine. Mentally patient was dull, inactive, rather confused and muttered unintelligibly. He had difficulty in comprehending questions; could not carry out simple commands; and there were evidences of paraphasia. Soon after admission to the hospital he succumbed to pneumonia.

Post-mortem examination showed cerebro-spinal meningitis, solitary gumma beneath the left prefrontal, and there were no evidences of parietic process.

The laboratory findings were as follows: *Wassermann test in blood positive; negative in the fluid; globulin present; fifty-two lymphocytes per cubic millimeter.*

CASE II.—L. P. Was admitted June 9, 1905, and re-admitted Aug. 9, 1906; age 37; married; led an irregular sexual life; history of syphilis could not be determined.

In 1903, two years prior to her admission, she began to complain of pain in the back and head (temporal region); became suspicious of her husband, and four months before admission she began to have vomiting which was independent of ingestion of food. Two months later convulsions were manifest. Usually after the convulsions she would become confused, and in one of these states she grew restless and tried to run away.

Upon admission to the hospital she was quiet, pleasant and smiled good-naturedly; she stated that she had fainting attacks. She was oriented and her memory was said to be good. The writing was slightly tremulous and letters were poorly formed. She admitted that she was not well mentally and because she was absent-minded and had imaginations.

Physically, exaggerated knee jerks; unequal, sluggish pupils; some evidences of healed ulcer of the tongue, and positive lymphocytosis of the cerebro-spinal fluid were noted. During her residence in the hospital she had convulsions, and in August, 1905, symptoms of motor aphasia, with right-sided hemiplegia, developed. In November, 1905, optic neuritis (W. A. Holden) and swelling over zygomatic region were observed. She was sub-

jected to anti-syphilitic treatment, and soon aphasic symptoms disappeared. April 9, 1906, she was allowed to go home, and at that time she was described as simple in her manner; had vague ideas about her future; however, her memory was good; and her speech showed some defect in handling the usual test phrases.

August 1, 1906, she was re-admitted to the hospital. During her residence here patient's condition shows no important changes. At times she is irritable and resents her detention; at other times she is pleasant and agreeable; employs herself fairly efficiently, and takes good care of her person. She exhibits faulty judgment. Her memory for remote happenings is poor, although orientation is fairly good. There are no hallucinations or delusions. She has had convulsions which were general, and on several occasions they were limited to the right side; she is also subject to fainting attacks.

Her physical health is good; residuals of right-sided hemiplegia; mobile pupils; over-active knee jerks; no tremors; no defect in speech in ordinary conversation.

Wassermann in the blood is positive; negative in the fluid; one lymphocyte per cubic millimeter; no increase of globulin.

CASE III.—G. F. Admitted January 3, 1908, æt. 44; Russian-Hebrew; syphilis not determined; however, there is suspicious history of syphilis; led an irregular sexual life; three children died in convulsions before one year old, and one still birth, and one died a few hours after birth. She had two attacks of excitement, for which she was treated in a hospital for the insane; it is said that she made a complete recovery.

The psychosis became manifest in June, 1907. The early symptoms were depression, volubility of speech, and headache. For three days patient was in coma. In November and December, 1907, she was restless, confused, and at times apathetic and inactive. In the hospital the patient was decidedly manic; however, at times she reacted to hallucinations which were accompanied by apprehension. On account of her inaccessibility, it was impossible to test her memory or orientation.

Physical status: In June, 1907, she suffered with headache, dizziness, diplopia, and had one convulsion. In October, 1907, choked discs with retinal hemorrhages were noticed, which cleared up on anti-luetic treatment. The right pupil is immobile and larger than the left one; unequal knee jerks, right more active; the right side of the face is slightly elongated; no tremors.

Wassermann test in the blood is positive; negative in the fluid; no globulin; seven lymphocytes per cubic millimeter.

II. MENINGITIC.

CASE IV.—E. P. Admitted November 2, 1910, æt. 40; U. S. A.; widow; the development of the psychosis was not known. While in a general hospital in New York she was noted as confused, reacting to auditory hallucinations and misidentifying those about her.

When admitted to the Manhattan State Hospital, physical examination showed complete paralysis of the left third and fourth cranial nerves; unequal, irregular pupils (right smaller than left) which reacted sluggishly to light; marked exophthalmus; occasional nystagmoid twitchings in both eyes; unequal and exaggerated knee jerks (left more active); suspicion of Babinski and Oppenheim (left); marked Romberg; gait poor; tremor of tongue and both hands; inability to pronounce the usual test phrases; tenderness of both lower and upper extremities; incontinence of both vesical and rectal reflexes.

Wassermann test in the blood was positive; however, negative in the fluid; globulin positive; one hundred twenty-one lymphocytes per cubic millimeter.

The mental picture was one of marked irritability, with confusion and fabrications. Orientation, memory and retention were very poor. She was unable to give a connected account of herself. She exhibited no insight; hallucinations or delusions were not demonstrated. Writing, aside from tremor, presented no defect.

In the early part of December, partial ptosis (right eye) was observed, and the pupils reacted more sluggishly to light.

In February, 1911, the patient reacted to hallucinations. At that time deviation of the tongue to left, with slight thinning of left side of face, was observed. In March, atrophy of the left side of the tongue was noted. Mental condition remained without important changes. Drastic anti-syphilitic treatment was resorted to, but without avail. April 11, patient had a general convulsion and soon death occurred.

Post-mortem findings were as follows: *Syphilitic cerebral endarteritis; chronic syphilitic meningitis and ependymitis, and internal cerebral hemorrhage.*

III. ENDARTERITIC.

CASE V.—E. V. Admitted January 6, 1895, æt. 44; Italian; widow; no anamnesis. It is said that in 1890 she had a paralytic stroke, and since then patient has been paralyzed and a bed-ridden invalid. Physically she showed paralysis of both extremities, with involvement of the right upper extremities and right side of face; double Babinski, and some atrophies; thick speech, with poor articulation; unequal pupils (right dilated) which do not react to light. Paralysis of the third nerve (right); both knee jerks diminished, and the left one is questionable; inability to stand or walk. Wassermann in the blood is positive; negative in the fluid; no globulin, and only three lymphocytes per cubic millimeter.

Mentally, the patient is rather optimistic, exhibits a relatively good memory and orientation, and there are no psychotic trends. In other words, we have a mild degree of dementia without marked memory defect.

CASE VI.—H. S. Re-admitted Aug. 20, 1910, æt. 35; New York; single; tinsmith. In 1903, he commenced to show signs of psychosis—ideas of reference, peculiar behavior and ideas of persecution. In 1904, he had a

chancre. From March 19, 1904, to July 8, 1904, he was a patient in the hospital. At that time he spoke of women exerting telepathic influences, and had other queer ideas. After discharge he resumed his work, but grew forgetful, and often spoke of his delusions and hallucinations. Finally commitment was imperative.

When re-admitted he showed a very clear picture of dementia præcox, paranoid type, and during his stay here he gradually deteriorated.

Physically he presents the following: Irregular pupils, especially the right one; the reaction in the left is good, and the right poor; over-active knee jerks; no Babinski; paresis of left side of face.

Wassermann in the blood positive; fluid negative; globulin present; lymphocytes seventy.

In this case we have dementia præcox upon which syphilis was engrafted and produced some neurological signs.

CASE VII.—E. D. Admitted June 9, 1909, æt. 26; New York; single; intemperate; history of syphilis three years prior to admission to the hospital.

The psychosis was gradual, about twenty months' duration preceding his commitment; delusions of persecution; some depression, hallucinations and peculiar behavior were the prominent symptoms.

When admitted to the hospital physical status showed evidences of past syphilis, mobile pupils, exaggerated knee jerks, and some tremors of the tongue.

Mentally, he was suspicious, evasive, had some high opinion of his ability, and attributed his trouble to syphilis. He spoke volubly and in a rather disconnected manner. Although he denied hallucinations, yet some of his statements were rather suspicious of hallucinatory experiences. He was approximately oriented, and memory, retention and grasp showed no defect. Writing and speech were without anomalies.

During his residence in the hospital patient rapidly declined mentally. At present his speech is incoherent and memory is very poor. He shows considerable indifference, and his behavior is odd. Orientation is good.

Physically, knee jerks are exaggerated; some tremor of tongue; no speech defect; writing tremulous, but no omission of syllables noticed.

Wassermann of the blood positive; fluid negative; globulin present; lymphocytes forty-four.

In this case we have a dementia præcox picture with few physical signs, which could be either explained on parietic process or cerebral syphilis. For the present, the somatic manifestations are ascribed to *syphilis*, and the case is looked upon as one of cerebral syphilis.

CASE VIII.—M. H. Admitted January 17, 1911, æt. 45; widowed; bartender.

The patient was born in Germany 45 years ago. He indulged in alcoholic beverages, and at one time had an alcoholic psychosis for which he was treated in Bellevue Hospital. He had contracted syphilis in 1894. In August, 1910, he had an unconscious spell, from which he recovered. In

September he complained of pains in his legs and knees, and suffered from headaches. At first he was buoyant in spirit, and later grew dull and apathetic. He had difficulty in deglutition and his speech became thick.

Upon admission to the hospital neurological status showed unequal and irregular pupils (right dilated and left contracted) which reacted promptly to light and accommodation; evidences of left-sided hemiplegia (including face); defective speech; tremor of tongue and facial muscles; writing revealed some omission of letters.

Wassermann in the blood positive; fluid negative; globulin positive, and there were one hundred forty-one cells.

Mentally the patient was dull, slightly depressed, spoke coherently and recounted the events of his life without showing any discrepancies in dates. Retention was fair, and orientation was not impaired; no psychotic trend determined. He exhibited good insight into his physical condition. Under anti-syphilitic treatment the lymphocytosis decreased to eleven cells per cubic millimeter, but the Wassermann in the blood was still reported positive.

This is one of the cases in which the diagnosis is obscure. The patient shows many signs of paresis with focal symptoms, yet cerebral syphilis cannot be very well excluded. From the neurological and cytological standpoint, the diagnosis would be cerebral lues. The diagnosis in this case is still in abeyance. This case serves to illustrate the difficulty one encounters in making a diagnosis of cerebral lues of a case the clinical picture of which is so involved.

CASE IX.—A. P. Admitted December 22, 1910, æt. 23; American-Italian; single; no history of syphilis. In 1908 patient had an attack of depression with suicidal attempt.

Shortly before admission to the hospital patient became depressed and attempted to shoot himself, and sustained a superficial gunshot wound over the right temporal region. In the hospital patient was depressed and hypersensitive, but without any defect in the intellectual field. He recovered and was discharged as "Depression not sufficiently differentiated."

Physical examination showed irregular pupils, which did not react to light, photophobia, and active knee jerks.

Wassermann in the blood and fluid was negative; globulin positive, and there were forty-seven cells.

This is probably a case of hereditary cerebral syphilis. At no time were there symptoms of paresis. At the time of his discharge he was perfectly well, but the eye symptoms still persisted.

CASE X.—T. B. Admitted January 21, 1911, æt. 50; Russian; married; syphilis not determined.

Shortly before his admission to the hospital he had chills and fever, for which he was treated in a general hospital. Following this he became depressed, could not walk, and at times appeared semi-stuporous. (Psychotic trends or peculiar behavior not observed.)

Upon admission here physical examination showed unequal and irregular pupils which reacted slowly to light; diminished knee jerks, especially the left one; some arteriosclerosis; writing slightly tremulous, and there was a coarse tremor of both hands. There were no evidences of meningeal irritation.

Wassermann test in the serum was positive; negative in the fluid; marked globulin, and one hundred sixty lymphocytes and two hundred seventy-one leucocytes.

Mental picture was one of mild depression with a poor memory, but without delusions or hallucinations. He was rather an ignorant man and it was difficult to say whether the memory defect was acquired or peculiar to his makeup. He remained under our observation a very short time. He was deported to Russia.

In this case the diagnosis of cerebral syphilis would come up, but again a positive diagnosis could not be made. Serologically and cytologically cerebral syphilis is very probable; however, the writer is disinclined to make the diagnosis on purely laboratory findings.

C. TABES.

The investigations of tabes give varying results with different authors. Schütze found in sixty-five per cent of his cases a positive Wassermann in the serum and in eighty per cent the Wassermann test was positive in the fluid. Eichelberg and Pfortner's seven cases showed complement deviation in five fluids and six sera. Of Merinesco's fifteen cases, eight were positive in the fluid and twelve were positive in the serum. On the other hand Rheinhardt had one hundred per cent of positive Wassermann reactions in the serum and fluid. Jacobstahl, Jarkowsky and Rajchman found the liquor positive and the serum negative. Of Nonne's cases fifty per cent were positive, and more recently the same author found of forty-nine cases only two fluids were positive, and in seventy per cent the serum gave a Wassermann reaction. Plaut's sixteen tabetics were mostly in the incipient stage of the disease; in six the spinal fluids reacted positively, one was slightly positive and three negative; the serum was positive in eight and negative in two. In only one instance the spinal fluid alone was examined, which was reported positive; in four cases the serum only was examined and one of them was negative. In a more recent contribution Plaut selected four hundred sera and one hundred twenty-seven spinal fluids of tabes; seventy-one per cent and fifty-nine per cent, respectively, showed a positive reaction.

We had only two cases of tabes with psychosis, the results of which are as follows: In one, Wassermann reaction was present in the blood, but not in the fluid; globulin was only slightly increased, and there were one hundred two lymphocytes. In the other case the Wassermann test was negative in the blood and fluid; there was no globulin, and there were fifty-nine lymphocytes.

In another case the diagnosis is not very clear. The question of general paralysis and tabes with a psychosis comes up for consideration. If the laboratory findings in general paralysis be decidedly pathognomonic, then this case should be interpreted as one of paresis. At the present time, one is reluctant to make a diagnosis. The following is a brief report of the case:

TABES OR GENERAL PARALYSIS.

E. G. Admitted January 21, 1911, *æt.* 38; England; musician.

Patient was arrested for creating a disturbance on the street.

When admitted here the neurological status showed Argyll-Robertson pupils; very diminished knee jerks (only obtainable on reinforcement); Charcot joint (right foot); no tremors; no speech or writing defect; no Romberg sign. Wassermann in the blood and fluid was positive; globulin positive, and forty-two lymphocytes per cubic millimeter. Syphilis fourteen years ago.

The mental picture was one of manic-depressive excitement, with grandiose and expansive ideas and without memory defect, or faulty retention. Soon excitement simmered down; however, ideas of self-importance still persisted, but without any intellectual defect.

SECOND GROUP.

A. ORGANIC PSYCHOSIS OF A NON-LUETIC NATURE.

The clinician is well acquainted with the fact that we have certain forms of mental diseases which may simulate general paralysis or cerebro-spinal syphilis, and not infrequently a differential diagnosis is very difficult. In such instances the clinical laboratory is of great value, and especially in certain obscure conditions where the etiology is important to ascertain in order to institute early therapy. In our studies we have selected cases in which the clinical diagnosis was unmistakable. The object of obtaining laboratory findings was to determine their value in such conditions.

The literature on the subject is not abundant, and we may only briefly refer to some investigators. Nonne had ten cases of tumors with autopsies; in all of them the fluid was negative and

the serum was positive only once. In that case the patient had a growth on his forehead, which disappeared under anti-syphilitic treatment. Saathoff and Rheinhardt had similar results. Plaut's six cases also reacted negatively to the Wassermann test. We had three cases of brain tumor, one with autopsy, in which the Wassermann reaction was negative in the blood and fluid; there was no increase of globulin or lymphocytosis.

B. EPILEPTICS.

The Wassermann test and the chemical and cytological content of the cerebro-spinal fluid in epilepsy is not of striking significance. The laboratory findings are usually negative, unless the disease-picture is complicated by luetic infection. Nonne and Holzmänn found five positive sera in their thirty-three cases of epilepsy, and in all of them the cerebro-spinal fluid showed no complement deviation. Nonne's former investigation of nine cases gave five positive sera; however, later it was demonstrated that one patient developed ataxia, hypotonus, diplopia and anosmia. Under mercurial treatment the symptoms disappeared. Another patient presented suspicious signs of cerebral lues. In two cases history of syphilis in the father was elicited. Convulsions subsided under treatment. In the last case, a syphilitic etiology could not be determined. Nonne and Holzmänn maintain that the Wassermann reaction is wanting in idiopathic epilepsy without syphilis, but in cases with a positive Wassermann test, a luetic etiology should be strongly suspected.

Of Eichelberg and Pförtner's seventeen cases of epilepsy, five gave a positive Wassermann test in the serum and the cerebro-spinal fluid was negative. These authors hold that complement deviation in epilepsy is independent of syphilis, and could be ascribed to the nature of the disease process *per se*.

In Plaut's monograph of 1909 three cases of epilepsy are reported and in all of them the findings were negative. Of his recent twenty cases only one had a positive Wassermann reaction, and this one presented a history of syphilis. In four only the fluids were examined with negative results, even in the case where the serum was positive.

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Kafka examined two cerebro-spinal fluids of epileptics with negative findings, and likewise Zalociecki's six cases gave similar

results. Of Lippman's nineteen cases, in only one the Wassermann reaction in the serum and blood was positive. In addition to these cases, he examined five other epileptics' sera in which complement deviation was present. In four of them a syphilitic history was satisfactorily demonstrated. In Hübner's nine epileptics the Wassermann reaction was not obtained.

Plaut maintains that the presence of a Wassermann reaction in idiopathic epilepsy should not be regarded as a phenomenon of epilepsy, but a complication of a luetic infection. Whether we are dealing with a syphilitic or non-syphilitic epilepsy will depend upon the entire course and progress of the disease-picture.

It is generally conceded that in epilepsy there is no increase of globulin and no lymphocytosis.

We had twenty-two cases of epileptic psychosis at our disposal; in all of them the diagnosis of epilepsy was unquestionable. In four the serum was positive, and strange as it may seem, a history of syphilis could not be determined. In one case the fluid reacted positively to Wassermann test. In two instances globulin was present, in one of them it was very slight. The number of lymphocytes was very low except in four cases. It may be tabulated as follows:

Number of Cases.	Number of cells per cubic millimeter.
1	6
1	5
1	10
1	15
1	23
1	7
2	4
3	2
6	1
3	0
1	3
1	1
22 cases	

Of these twenty-two cases three presented rather anomalous features from the point of view of serology, cytology, and chemistry. All the three epileptics have had convulsions for years; two since early childhood, and the other since the age of eighteen (present age about 30). They present the usual signs of mental stigmata peculiar to epilepsy; there is no history of syphilis and

signs of organic brain disease cannot be determined. The laboratory findings in the cases were as follows:

Case I.	Case II.	Case III.
Serum negative. Fluid negative. Globulin mild. Lymphocytes 15 per cmm.	Serum positive. Fluid negative. Globulin negative. Lymphocytes 7 per cmm.	Serum negative. Fluid negative. Globulin negative. Lymphocytes 23 per cmm.

These patients were put on anti-syphilitic treatment (potassii iodidi gr. xv and mercurii chloridi gr. 1/32—three times a day), and five months later another serological, cytological and chemical examination was undertaken and the four tests were absolutely negative. Nevertheless, the patients are subject to convulsions which recur as frequently as formerly. These cases are difficult to interpret; one would naturally think that some error in the laboratory technique had been committed. Had the luetic etiology been responsible for the disease process, convulsions should have disappeared under specific treatment. Such was not the case with our patients.

C. CHRONIC ALCOHOLIC PSYCHOSIS; ARTERIOSCLEROSIS; SENILE PSYCHOSIS; AND TRAUMATIC PSYCHOSIS.

It is generally contended that in chronic alcoholic psychoses, arteriosclerotic insanity, senile dementia, and traumatic psychoses, no abnormal manifestations from the point of view of serology, chemistry, and cytology are demonstrable.

According to Plaut:

	Negative.		Positive.	
	Fluid.	Serum.	Fluid.	Serum.
Chronic Alcoholism.....	8	10	..	..
Korsakoff Psychosis.....	3	5	..	..
Alcoholic Delusional Insanity.....	4	4	..	..
Arteriosclerosis.....	13	17	..	1
Post-traumatic Psychoses.....	2	..	..	..
Dementia Senilis.....	..	1	..	..

Nonne had three cases of pseudo alcoholic tabes; in two, the fluid was positive, and more recently he examined seven cases and in all of them both the fluid and serum revealed no complement deviation.

Our material contained thirty alcoholic cases, ten of which were of Korsakoff form, and twenty were acute hallucinosis, paranoid form, etc. The first ten cases showed no Wassermann reaction in the blood or fluid; there was no lymphocytosis or increase of globulin. In one case we obtained a history of syphilis. Nevertheless, the laboratory findings were entirely negative. Of the twenty other cases, in fifteen Wassermann reaction was not demonstrated either in the blood or fluid. In five the serum was positive, and only one fluid revealed complement deviation with increase of globulin. In that case particularly, there were no symptoms of paresis, and a history of syphilis was denied. In three cases a history of syphilis was obtained. In none of these cases (except in one as stated) was lymphocytosis or increase of globulin determined.

Fourteen cases of arteriosclerotic insanity and senile psychosis and one traumatic psychosis presented negative laboratory findings; in other words, the four tests were negative.

D. FUNCTIONAL PSYCHOSIS.

Of functional psychosis we had seventeen cases of dementia præcox, eighteen manic-depressive insanity, and four constitutional inferiority. In three cases of dementia præcox there was a positive Wassermann reaction in the blood, and in only two a history of syphilis was elicited. In four cases of manic-depressive insanity, a positive Wassermann test in the blood was found; in only one a history of syphilis was obtained, and the other case was examined a few days prior to an attack of erysipelas. The four cases of constitutional inferiority also gave negative results in the blood and fluid. In none of these cases was an increase of globulin or lymphocytosis in evidence.

CONCLUDING REMARKS.

Before attempting to offer deductive conclusions, it is necessary to recall the fact that, although some give recognition to the specificity of the Wassermann reaction, yet the true biologic significance is not fully known. The nature of the Wassermann test is still *sub judice*. We have only a tentative explanation of the theory of the Wassermann reaction. Indeed, Plaut very conservatively remarks: "(1) The Wassermann reaction for syphilis is a biologic, specific, antigen-antibody reaction; on the one hand

the antibody has the peculiarity of reacting, not only with syphilitic antigen, but also with normal connective tissue constituents, and on the other hand the antigen is closely related to lipoid substances or is a specific albumen-lipoid combination. (2) The active substances of the syphilitic serum are not antibodies, but are substances which owe their origin to syphilitic infection and possess a chemical affinity for lipoids (toxins). (3) In the Wassermann reaction, specific and non-specific combination processes go hand in hand."

One must remember that Wassermann reaction can be demonstrated as a transitory phenomenon in scarlet fever, malaria, lepra, trypanosoma, tuberculosis, and not infrequently it is also found in normal individuals, and then again this test is not elicited in cases with a history of syphilis. In spite of the fact that every possible effort is made to perfect laboratory technique, nevertheless, errors occur with the very best trained laboratory workers. Since the nature of the biologic process is still unknown, the test can only be regarded as of relative significance and should only be taken in conjunction with other laboratory tests and clinical data.

The following conclusions are submitted:

I. In order to make a complete laboratory report of neurologic or psychiatric validity, it is essential to examine the blood and fluid for complement deviation, and, in addition to this, cytological and chemical tests of the cerebro-spinal fluid should be made. An examination of the blood alone will throw no light on the psychiatric or neurologic diagnosis. It must be also emphasized that in suspicious cases, several examinations of the blood and fluid should be performed.

II. The one hundred cases of general paralysis gave in sixty-three per cent a positive Wassermann in the fluid and blood; seven per cent revealed a positive Wassermann only in the blood; in sixteen per cent the Wassermann reaction was present only in the fluid; in four per cent of the cases, Wassermann test in the blood and fluid was negative.

It will be remembered that the French school maintains that (1) in the incipient stages of general paralysis the Wasserman reaction is present in the blood and not in the fluid; (2) in the fully developed stage both the blood and fluid show complement deviation; and (3) in the last stage of the disease the fluid, but

not the blood, gives a positive Wassermann test. We have had no experience with incipient cases of general paralysis; forty-nine out of seventy-two cases substantiate the second statement and only seven of twenty-two general paralytics of the last stage confirmed the third statement.

It is important to note that some of our cases gave a negative Wassermann test in the blood, also there are other instances in which the Wassermann test was negative in the fluid, and again there are cases which show a negative Wassermann reaction both in the blood and fluid; and these findings bore no relation to the course and progress of the disease process.

In all our cases, except two, lymphocytosis was demonstrated with varying intensity, but no distinct parallel with the course of the disease could be established. It may be safely stated that in the majority of our cases the four reactions were, as a rule, present. *Beyond a shadow of doubt, the cytological reaction, plus the globulin content, are of profound significance, and are always indicative of an organic process in the central nervous system.*

III. In cerebral syphilis the four reactions are not always elicited. In two cases of cerebral syphilis, which were confirmed by post-mortem examination, the Wassermann reaction was present in the blood, but not in the fluid, and globulin increase and lymphocytosis were manifested. These results confirm Plaut's views of the serological content of the blood and fluid in cerebral syphilis.

In chronic syphilitic endarteritis of a non-active process and apparently healed gummata, the blood gave a complement deviation, the fluid was negative for Wassermann test, globulin was not increased, and the cell-count was very low—only three lymphocytes per cubic millimeter. In other cases, where the syphilitic process was relatively young or active, the results were the same as those obtained by Plaut. However, the writer is reluctant to employ his material for deductive purposes. It is important to call attention to these anomalous features, and only such material could be utilized for deduction as could be supported by autopsy.

Our tabetic material is too small to be commented upon. It is worthy of emphasis that the four reactions were not present in the two cases.

IV. The alcoholic psychoses present no pathological phenomena in the fluid; however, in some of the cases Wassermann reaction was present in the blood and, indeed, in some instances a history of syphilitic infection was obtained. Likewise arteriosclerotic and senile mental diseases and functional psychoses (such as dementia præcox, manic-depressive insanity, etc.) gave similar results.

V. In epileptic psychoses as a rule neither the blood nor the fluid reveals abnormal constituents. Strange as it may seem, three of the twenty-two cases of epileptic psychoses on the first examination showed some abnormal phenomena in the blood and fluid. Under anti-syphilitic treatment these pathologic manifestations disappeared. It is very difficult to interpret these results inasmuch as the convulsions did not cease or decrease in frequency.

VI. While no examination of an organic mental disease is complete without a full laboratory report, from the standpoint of serology, cytology and chemistry, nevertheless, in the present state of our knowledge, one feels that a clinical laboratory cannot be considered as the ultimate court of appeals for deciding disputed diagnosis of border-line cases. The clinical observations cannot be undermined; the development of disease cannot be ignored; and the progress and course of the clinical phenomena should be carefully considered. The laboratory results can only be utilized together with the clinical data.

The author is under great obligations to Dr. William Mabon, Superintendent and Medical Director of Manhattan State Hospital, New York, and the Medical Board of New York Neurological Institute, New York, for the permission and encouragement received in undertaking this work. He also wishes to express his gratitude to Dr. George H. Kirby, Clinical Director of Manhattan State Hospital, New York, for the assistance rendered in the selection of the clinical material from the point of view of diagnostic classification, and his thanks are due to the members of the staff of Manhattan State Hospital for their coöperation in his investigation.

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AN INTRODUCTORY HISTOPATHOLOGICAL STUDY OF THE PARAPLEXUS IN THE PSYCHOSES.

By J. A. E. PFEIFFER, M. D.,

Government Hospital for the Insane, Washington, D. C.

To the choroid plexus has been attributed the important function of generating and secreting the cerebro-spinal fluid. Of recent years, considerable diagnostic value, especially in the psychoses, has been attached to alterations of the constituents, and the pathological findings in this fluid. Yet, *mirabile dictu*, the histopathological changes, which must obviously attend abnormal transformation of this secretion, have been practically overlooked.

Studies were made of fifty-one paraplexuses from individuals suffering with different forms of insanity, viz.: Paresis, 14; cerebral syphilis, 4; senile dementia, 7; arteriosclerosis, 8; epileptic, 2; dementia præcox, 6; acute mania (?), 1; manic depressive, 1; paranoid state, 1; chronic alcoholism, 1; unclassified, 4; imbecility, 2. For comparison, plexuses from two individuals dying in a general hospital, of diseases without mental symptoms, were examined; and plexuses from the rabbit, guinea pig, ox, calf, sheep, hog, cat, and dog were secured. Sections were obtained from plexuses imbedded in paraffin and celloidin. Fresh material was also utilized. The following methods of staining were employed: Toluidin blue, hematoxylin-eosin, Van Gieson's picric acid and acid fuchsin, Sudan III, osmic acid, Levaditi, Weigert's for fibrin, Hexaheimer's, nilblau, cresyl violet, and Mann's modification for vessels.

ANATOMICAL AND HISTOLOGICAL CONSIDERATIONS.

The velum interpositum, or tela choriocidea superior, requires description, because its fringed, highly vascular border (paraplexus, Fig. 1), composed of a triangular fold of pia extending into the paracele along the rima or gap between the diencephalon and hemicerebrum, cannot be understood except in connection with the velum.

The pia of the under portion of the developing first brain vesicle, by the downward and backward growth of this segment, is eventually brought in immediate contact with the upper surface of the second brain vesicle. These two lamellæ of pia, a dorsal and a ventral layer, between which exists subarachnoid tissue, constitute the tela choroidea superior, a veil interposed between

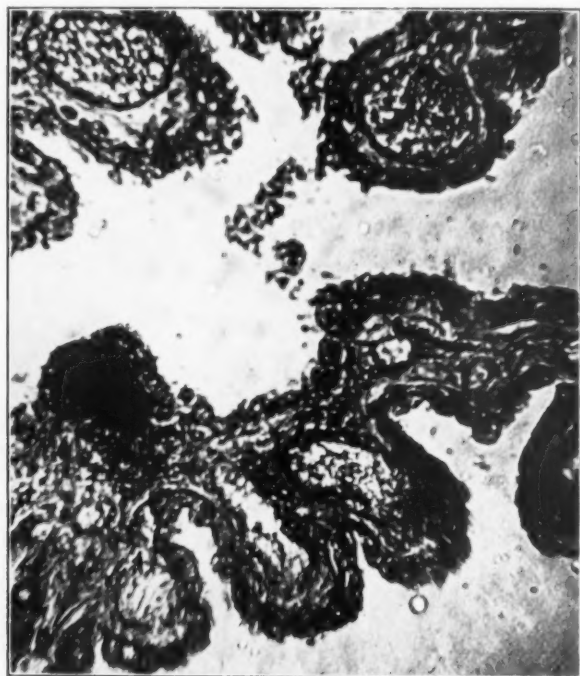


FIG. 1.—Showing general structure of paraplexus.

the prosencephalon and the thalamencephalon. It lies (just) beneath that part of the fornix which can be seen in the bodies of the lateral ventricles, and the splenium of the corpus callosum, its dorsal lamellæ being joined with the ventral surface of these bodies. It is above the optic thalami and corpora quadrigemina, its ventral fold uniting with the optic thalami. It lies over the body of the third ventricle, forming its membranous roof, resting at the sides upon the upper surface of the optic thalami, and extending as far as the oblique grooves on their superior surfaces.

The dorsal or base of this triangular fold of pia mater is in continuity with the pia mater enclosing the inferior surface of the occipital lobe and the superior surface of the cerebellum. The fold is bifid at its apex, each section ending just dorsal to the anterior pillars of the fornix. In the floor of each lateral ventricle between the tania semicircularis, which borders the caudate nucleus, and the fimbria which forms the edge of the fornix, is a narrow strip of the parietes of the first encephalic vesicle in which nervous tissue is entirely absent, and as a result the wall of the vesicle, in this area, is composed only of pia and endyma.

The tania semicircularis and fimbria extend from the cella of the lateral ventricle into its medicornu, and the partition intervening between them in this region is identical in structure with that between them in the body of the ventricle—simply pia and endyma in close contact, the nervous tissue no longer existing, which was at one time present in this narrow space. In those regions where the richly vascular pia covers nervous tissue, many branches from its vessels penetrate into the outer layers of this tissue which forms a supporting structure, but along this lineament, which extends from the tip of the medicornu to the foramen of Monro, the pia is not sustained by such material being in intimate relation to the fragile endyma.

As a consequence, the branches become distended and elongated, impelling the delicate serous membrane entad, the result being an erratic, clumpy mass of vessels enveloped completely by endyma, and intruding into the space originally a part of the ventricular cavity. This vascular structure is called the paraplexus. While the choroid plexus is generally said to intrude into the paracele, this statement is not exact, as the cavity is bounded by the endyma and no infraction is made in this membrane, the true condition being that the wall is turned entad and the capacity of the ventricular cavity correspondingly diminished. All the paraplexuses are explained in a similar manner. The erratic and winding disposition of the arterioles and venules of the choroid plexus has led to its description as an erectile tissue. It apparently does not possess this attribute. The choroid plexuses are separated from the ventricular cavity by an investment of cuboidal cells, which have their origin from, and are in continuity with, the ependyma cells lining the walls of the ventricles. Thus the blood-vessels of the

plexus lie without and not within the cavity of the cerebral ventricles, since they are separated from the paraceles by the ependyma cells, which form a part of the wall of these cavities from an ontogenetical aspect.

It is interesting to note, that although the choroid plexuses of the cellæ of the lateral ventricles originate from the velum interpositum, the choroid plexuses of the postcornua are derived from the pia covering the cortical parts of the rhinencephalon.

The arcuate fissures through which the invagination of the atrophied parietes of the secondary forebrain is effected, by the richly vascular pial tissue, to form the paraplexuses are called the choroid fissures (fissures of Bichat). The lymphatic channels of the choroid plexuses are undefined. The paraplexuses of the medicornua are supplied with blood by the prechoroid arteries, branches of the internal carotid arteries. The paraplexuses in the vicinity of the splenium are supplied by the postchoroid arteries. The choroid veins return the blood from these plexuses, and at the foramen of Monro unite with the venules of the corpora striata to form the veins of Galen. Nerves have been found entering the plexuses.

It is generally stated that only pial tissue enters into the formation of the choroid plexus, no arachnoidal tissue being present, contrary to what might be expected, since this variety of tissue is found between the layers of the velum.

Some investigators have contended that the soft coverings of the brain are not separate and distinct membranes, but essentially one structure in their entirety, and hence are only to be considered as one membrane. The term pia-arachnoid has been used to designate this structure. After careful histological examinations of the cerebral meninges, I am inclined to believe that the pia mater and arachnoid should be considered as one membrane. If this view be accepted, then arachnoidal tissue may be regarded as entering into the formation of the paraplexus. The pia arachnoid, which is the basis of the choroid plexus, is intimately adherent to the surface of the brain and sends prolongations into all its sulci. Double folds of pial tissue are formed by such introversions into the larger fissures, and in the smaller the invaginated portions are septum-like in character. (In this detail the pia mater is described as differing from the arachnoid which is said to span all

the sulci, not accompanying the pia, except in the instances of the very largest fissures.) The membrane consists of fibro-elastic tissue, disposed in irregular lamellæ, divisible into an outer and inner layer, and forming a spongy tissue, in the interstices of which more or less fluid may be found. Coarse fibrous bundles compose the outer layer, while the fibers of the inner layer are finer and the lamellæ thin.

The membrane is a typical vascular structure. Numerous lymphatics and blood-vessels intervene between the two layers. The lymphatics of the layers freely communicate, and the larger vessels are loosely disposed between the layers. This fibrous connective tissue membrane, and also the sheaths of its vessels, are covered with a layer of endothelial cells. In the paraplexus numerous spaces, varying in size and shape, result as a consequence of the network arrangement of the fibrous bundles which cross over one another. Although irregularly disposed, these cavities communicate, contain fluid and are lined with endothelial cells. A pyriform enlargement of the plexus is present in a number of instances near the most capacious part of the paracele, at the union of the cella with the postcornu, and which is called the glomus. In this enlarged region the spaces referred to are greater in size than in the denser portions of the plexus, in which minute channels can be discerned lying between loose areolar tissue.

Many highly vascular finger-like processes, varying greatly in size, project from the surface of the plexus. The larger villi are extensively subdivided into numerous branches, and the villi are supplied with arterioles which enter a capillary plexus. Minute venules collect the blood from these plexuses. Capillary loops can be observed in most of the smaller villi.

Epithelium composed of a single layer of cells entirely covers the free surfaces of the villi, although Luschka has referred to it as formed of several layers of cells, and resembling compound or stratified epithelium.

It is, however, readily perceived upon histological examination of a sufficient number of choroid glands, that there is but a single stratum of cells, except in those instances in which proliferation has occurred, either of a pathological or compensatory character.

The cells of the choroid glands of embryos and young animals may be distinguished from those of the adult, being ciliated, more columnar in type, more difficult to stain and with their nuclei placed near the apex of the cell.

Even in normal condition, the choroidal cells are not uniform in size. They are mostly of an irregularly rounded contour, but cuboidal, polygonal and triangular types are occasionally encountered. Their nuclei are spherical or oval and contain nucleoli. The chromatin seems to be collected into minute aggregations. A fine reticular structure (spongioplasm) is seen within the protoplasm of the cell, and knots are formed between the meshes, giving the cells a granular appearance.

A large round mass is generally present in the cytoplasm, usually about half the size of the nucleus, but occasionally of almost the same dimensions. It is probably a lipoid substance contained within a vacuole. The cells of this epithelial membrane are maintained in proper juxtaposition, one to another, by delicate intercellular cement substance. Fine protoplasmic threads are sometimes seen bridging across the intercellular substance, or uniting between adjoining cells. The uniform connective tissue, which is normally quite sparse in the villous projections, forms a basement membrane for the epithelial covering. It contains a few oval, spindle and ramifying cells, and beneath the bases of the epithelial cells in the sub-epithelial layer, peculiar flattened cells may be seen, which send processes between the cells, producing basket-like depressions, in which the bases of the cells are contained. They can be recognized by their flattened chromatophilic nuclei and thin cytoplasmic cell bodies. The function of these cells is, probably, structural in character.

The consensus of opinion is that the paraplexus is an actively secreting gland, its function being to secrete the cerebro-spinal fluid, which differs in composition from the lymph and from the fluid discharged in serous exudations. According to Meek, the droplets, which are normally present in the choroidal cells, become larger in size as they advance toward the apical extremities of the cells, and they seem to be expelled without destruction of the cells from which they are discharged. It has been thought by some that dissolution of the cells occurs upon extrusion of these droplets. The gland is presumably a ductless organ.

HISTOPATHOLOGICAL CONSIDERATIONS.

Hyaline nodules are a frequent pathological finding and appear as minute dark granules staining purplish with hematoxylin, but quite differently with other stains. It can be easily demonstrated that calcium salts are commonly a constituent of these bodies, especially in senility, and that fatty degeneration occurred previous to calcification. Calcareous infiltration (Fig. 2) can be recognized by the grating sound produced upon division of the

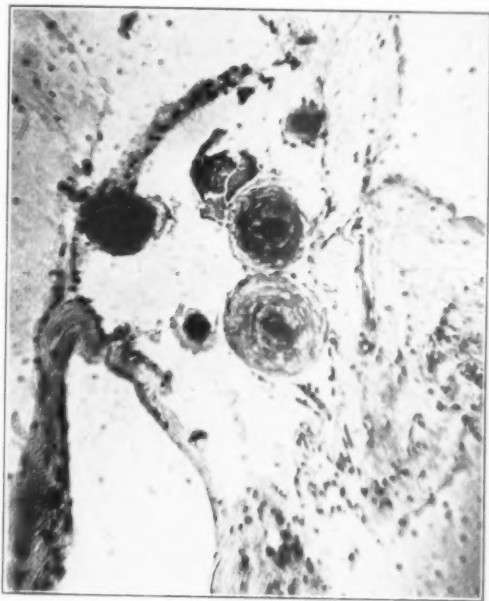


Fig. 2. Calcareous infiltration of the paraplexus (senile dementia).

choroid gland. The hyaline concentric bodies met with in the choroid plexus are apparently identical in origin and nature with those found in the dura and pia arachnoid. They are invariably abundant in the insane, occurring in 60 per cent of the fifty-one plexuses examined. These bodies are most frequently round but are occasionally irregularly shaped or elongated. The greater number present concentric rings varying in distinctness and number. Virchow states that these concentric bodies are formed by a deposition from the tissue fluids.

After examining a number of these bodies it seems more than likely that some of them result from an extensive hyaline degeneration of capillary walls, the lumina of which are subsequently obliterated by a multiplication of the endothelial cells of the intima as shown in Fig. 3. Perivascular hyaline degeneration is often an accompaniment.

They may arise in consequence of a proliferation and hyaline degeneration of the endothelial cells lying within the interwoven



FIG. 3.—Hyaline spherules of the paraplexus in different stages of formation (arteriosclerotic dementia).

connective tissue supporting the frame-work of the plexus, since cellular hyaline degeneration is probably limited to mesodermic cells. The endothelial cells become swollen and no longer react to nuclear stains, and are ultimately converted into a hyaline spheroid of a homogeneous appearance, staining poorly. Cells may form small individual concentric whorls (Fig. 4) or attain relatively large dimensions, or coalition of several may supervene. The concentric rings are apparently a final stage in the process, due to contraction. They are subsequently surrounded by a

fibrous capsule, a matter of no special significance, as this is the usual reaction of the body in respect to all foreign matter. The fibers of hyperplastic connective tissue may become so closely packed together that the mass may assume a homogeneous hyaline character (Fig. 4), or by a general fibrous change be converted into a pale solid body of a cylindrical shape, with a finely granular surface. It seems likely that this hyaline substance results from a proteid modification *in loco*, by an interference with the function



FIG. 4.—Concentric whorls and homogeneous types of hyaline bodies of the paraplexus (paresis).

of the cells, or a deposition of insoluble material. How this transformation takes place cannot as yet be definitely explained. It is improbable that an analogy exists between its origin and the coagulation of proteids by heat. Proteid precipitates by salts and metals, are obviously different, and their insolubility in water not stable. It may be converted into other albuminoid substances, and may undergo caseous degeneration. This caseous variety of degeneration was present in three of our cases. Pigmentary degeneration was observed in senile cases. Retrogressive fatty

changes undoubtedly precede calcification, as is proven when stained with Sudan III or osmic acid. These hyaline formations display a typical affinity for acid anilin-stains, although a reaction to basic stains also occurs. With Van Gieson's acid fuchsin and picric acid mixture, the concentric whorls are frequently stained a bright red color. They may also take fibrin stains. Toluidin blue gives to these bodies a beautiful sapphire blue, and they appear of a violet tinge when stained with cresyl-violet. The reaction to stains of hyaline nodules is very uncertain, and they at times resemble amyloid material. Cholestrin is not infrequently found in senility, but typical cholestrin plates are rarely in evidence. They are of a faint yellowish color and irregular in form.

Among the great variety of tumors which occur in the paraplexuses, cysts are manifestly the most common. In the choroid glands of the insane they are most frequent, being found in 65 per

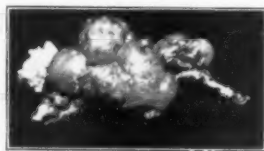


FIG. 5.—Mulberry-like appearance of the paraplexus.

cent of the cases under consideration. They may be single or multiple and are often more numerous on one side of the brain. In some instances they are so abundant that the greater part of the plexus is transformed into a mulberry-like mass (Fig. 5). They may be extremely small or attain a diameter of 10 mm. Many tiny vessels can be discerned traversing the surfaces, or imbedded in the walls of the cysts. The surfaces also present a fine granular aspect, the granules probably representing minute hyaline bodies. The surfaces of the cysts may be only partly covered with epithelium. In the smaller ones it occasionally remains unbroken, but the cells are flattened and their cytoplasm prolonged, simulating at times fibroblasts. The epithelium may only be present at the bases of the larger cysts, or a few patches of elongated cells scattered irregularly over their surfaces. These rod-like cells with the extremities of their protoplasm in apposition present a string-like appearance. Gaps in the continuity of these

strings of cells can be seen at the summit of the larger cysts, dissolution having occurred. These threads of transformed cells are rarely closely applied to the surfaces of the cysts, but in many cases a considerable space exists between them and the surfaces. It is quite evident that some of them become entirely detached and enter the fluid of the ventricles. The majority of the larger cysts are multilocular in character (Fig. 6), being divided into a



FIG. 6.—Cystic condition of choroid plexus, showing structure of cysts (senile dementia).

number of compartments by delicate trabecular processes of connective tissue, which are lined by endothelial cells in various stages of degeneration, some being altered in appearance almost beyond recognition. A similarity existing between the degeneration of the endothelial cells in cystic formation and in the evolution of hyaline concentric whorls is sometimes evident. These translucent sacks are filled with a clear slightly yellowish liquid, or a celloid-like viscid mass. The contents of these cysts were examined in several instances, and found to contain cells, usually somewhat altered. In the fluid of some of the cysts, only degenerated endothelial cells could be found, while in the contents of others blood discs, lymphocytes, large mononuclear cells with twisted nuclei, endothelial elements, and remnants of broken-down cellular tissue were present. Concentric whorls are often seen within the cyst, most frequently near the base and contingent to its wall,

but were also observed in the center of the cyst, attached to the connective tissue trabecular processes. The origin of these cysts has not been conclusively determined. Adhesions at the edges of fissures, with persistence of secretory activity, may give rise to retention cysts. Hyaline homogeneous formations and concentric whorls seem to co-exist with cystic conditions of the plexus. They are seen in the vicinity of the blood-vessels, and sometimes seemingly attached to their walls and exerting pressure upon the vascular structure (Fig. 7). That they tend to compress lymph

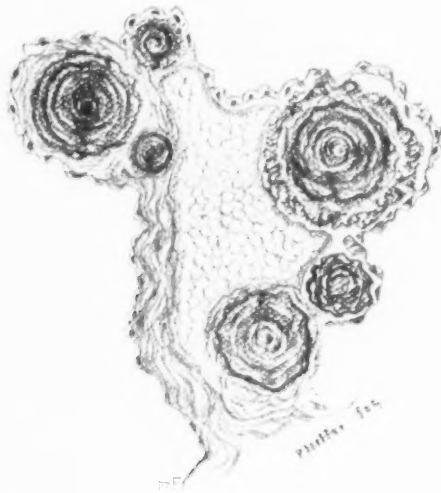


FIG. 7.—Compression of vessel of paraplexus by concentric whorls.

channels, and in consequence check the flow of lymph, producing an obstructive edema, seems to be quite an acceptable conclusion. The spaces through which the circulation of lymph is maintained in the choroid plexus may, after the same manner, become occluded by a proliferation of the cells, entirely filling up these spaces. Such impediments form barriers against which the lymph is forced.

Progressive proliferation and hyperplasia of the surrounding tissue occasionally causes the cyst to become practically isolated from the neighboring parts. The interstitial hyaline degeneration, which is encountered affecting the vessels and connective tissue

of the choroid plexus, is one of the most interesting and pertinent conditions to be considered. The adventitial coats of the smaller arteries are more particularly involved. The connective tissue fibrillae disappear as such, and are transformed into an homogeneous translucent mass in which few of the typical attenuated nuclei can be detected. Whether the vanishing of the fibrillae results from a swelling and fusion of the individual fibrils, or from a deposit between them of material having the same refractive index, cannot be conclusively stated. Whichever way produced, there is, without doubt, an increase in volume, as the interstitial tissue becomes broader than normal. The capillaries in connection with the small arteries present the most pronounced hyaline degenerative conditions. Although the outer coat may be affected alone, or the inner and middle coats together, quite frequently all three coats are attacked. The walls of the capillaries may become converted into thickened hyaline tubes, or the whole capillary converted into a solid homogeneous hyaline mass. Hyaline degeneration of the outer coat consists in a thickening of the longitudinally disposed fibers. The enlargement may be inconsiderable or great and is not granular. It not uncommonly becomes two or three times the breadth of the normal adventitia. The intima seldom attains the thickness of the adventitia when undergoing hyaline changes. It often presents an undulated aspect, and its convolutions extend into the media, which is in a more or less degenerated state due to an interference with its nutritional mechanism, as a result of the swelling of the intima. The degeneration of the muscular coats ends in a granular formation. Small dilatations and saccules are often encountered in connection with the arterioles, which appear to be associated with the hyaline degeneration in the vessel walls. These spindle-shaped dilatations may become abundant, terminating by the production of miliary aneurisms. "Hyaline thrombi" may be met with in such vessels. Formation of new vessels was observed most often in paresis. A duplication of the elastica occasionally occurred, and in many cases aneurismal dilatations. The elastica in the endarteritic vessels was unusually wavy. A similar duplication or hypertrophy of the elastica can be demonstrated in cerebral syphilitic endarteritis.

The choroidal cells of the paraplexus present some interesting features. Among the fifty-one plexuses examined from the insane, complex epithelial formations were in only one instance demonstrable in the plexuses obtained from cases of functional psychoses, but were to a greater or less extent evident in all the choroid glands from other forms of insanity. In paresis many of them were enormously enlarged, swollen and contained spherical or irregularly shaped masses of lipoid material, in some instances almost entirely filling the cells, and degenerative changes were pronounced (Fig. 8). In close proximity to the nuclei were

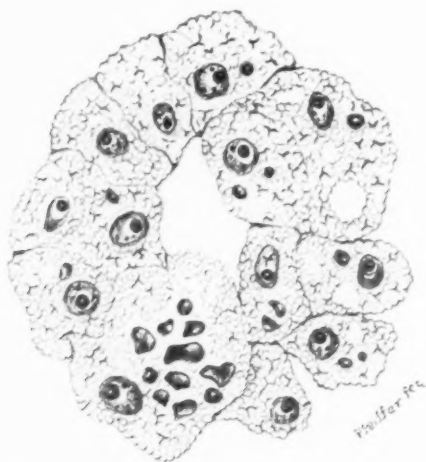


FIG. 8.—Cells undergoing degeneration and presenting a stratified aspect (paresis). Some are filled with lipoid material.

clumps of granules, reacting differently than the lipoid substances to stains. Changes of a similar nature, but to a less extent, were evident in the cells in senile dementia.

Ring-like formations, apparently overlapping one another, appeared along the free borders of some of the cells in paresis (Fig. 9). These cells in no instance contained droplets, nor were lipoid substances discernible. Degenerative changes were perceptible in a few of these cells.

The transformation of cells into several large vacuoles, with flattened and deformed nuclei occupying positions near the periphery of the cells, thus simulating *Körnchenzellen* in appearance

(Fig. 10), were more frequently observed in marantic forms of insanity, in which cytological degenerative processes are pronounced. The intercellular substance, between those cells

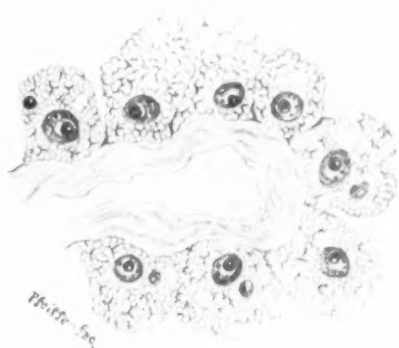


FIG. 9.—Cells with "ring-like" formations along their free borders (paresis).

which are deteriorated, has disappeared, and relatively wide intervals can be perceived between the cells. Branching of the nuclei of connective tissue cells was an interesting feature in cases of dementia paralytica. Mast cells were found in 80 per cent of



FIG. 10.—Vacuolization of cells, simulating Körnchenzellen in appearance (chronic alcoholism).

the cases, but were especially numerous in senile dementia, arteriosclerotic dementia, paresis and cerebral syphilis. A few plasma cells were observed in all of the plexuses of paralytic dementia.

In conclusion, I wish to express my thanks to Dr. William A. White for permission to engage in this research, and to Dr. G. R. Lafora for many valuable practical suggestions.

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HOW LONG HAS PELLAGRA EXISTED IN SOUTH CAROLINA?*

A STUDY OF LOCAL MEDICAL HISTORY.

By J. W. BABCOCK, M.D.,

*Physician and Superintendent, State Hospital for the Insane,
Columbia, S. C.*

Introduction.—This is a presentation of recorded facts, so far as they are available. Records bearing on the subject, however, are few and isolated, and where they are wanting or connecting-links are entirely missing, for collateral evidence recourse has been had to recollections and traditions, and finally even to judgments and inferences—confessedly not reliable guides either in medicine or in history.

My chief sources of information, however, have been the written records in the case-books of the South Carolina Hospital for the Insane, and the printed annual reports of its physicians. Contrary to expectation the most important and striking clinical memoranda discovered belong notably to the earliest or ante-bellum period of the history of the asylum. Unfortunately, these data are for the most part very brief, and many lacunæ exist, thus necessitating the introduction of a number of separate details to produce a composite picture.

In carrying on my investigations I have conferred both with officials who have long had charge of our patients and with general practitioners. When inferences have been used, I have consulted pellagrologists of presumably unprejudiced mind, and have included their valued opinions.

Certain parallels in the history of pellagra, in this and other countries, have been drawn, and experiences in adjoining states have been cited where they have a bearing upon local conditions.

In reaching conclusions it has been necessary to reject former diagnoses of my own as well as to suggest revision of those of other physicians, including my distinguished predecessors. But, so far

*Read at the sixty-seventh annual meeting of the American Medico-Psychological Association, Denver, Col., June 19-22, 1911.

as possible, the study is impersonal and has been made in the interest of truth, and its spirit is that of confession and explanation rather than of adverse criticism or reprehension.

History.—In our State Hospital, pellagra was first recognized, in ignorance of any previous observation of the disease in the United States, by members of the medical staff about December 1, 1907. A statement of these observations was made at once, orally to officers of the State Board of Health, and on December 30, 1907, a preliminary report was presented, which was published in the 28th annual report of that Board for 1907. Our report was also printed soon afterwards in the *Journal of the South Carolina Medical Association* (Greenville, 1908, IV, 64-76), and in the *AMERICAN JOURNAL OF INSANITY* (Baltimore, 1908, LXIV, 703-725). Some comment was made upon it by the newspapers, one of the first being the *Charleston News and Courier* of January 14, 1908. Such dissemination of the subject at last attracted attention. For in the following spring and summer, although not a little skepticism prevailed as to the actual existence of pellagra in our state and elsewhere in the country, and although it was the object of considerable ridicule, yet a number of cases of the disease were recognized and reported in South Carolina, as well as in other states. The disease was identified with Italian pellagra in the summer of 1908 by two South Carolina physicians.

On October 29, 1908, our State Board of Health held a well-attended conference on pellagra in Columbia, and on November 3 and 4, 1909, under the auspices of the same Board, there was held a National Pellagra Conference in the same place. The transactions of this meeting proved to be a distinct addition to the literature of the subject. Since then annually in November a pellagra clinic has been conducted in Columbia by the State Board of Health. These meetings have served to stimulate more than local interest.

Naturally, among the many questions about the disease, upon which all would like definite information—at least historically and statistically—are: How prevalent is pellagra? and How long has it existed in South Carolina?

In the preliminary report of 1907, nine cases of supposed pellagra, both remote and recent, were described. At the meeting in 1908, Dr. C. F. Williams, the state health officer, announced that he had received 269 replies to 942 inquiries sent to physicians in the

state, reporting 187 cases of the disease. In 1909, after a careful investigation, Dr. Williams estimated that there were 500 cases of pellagra in South Carolina. The report of the Board of Health for 1910 stated that between 500 and 800 cases of the disease had occurred in the state during the year.

In 1911, Dr. J. A. Hayne, the present state health officer, in response to 1200 inquiries, received replies from 250 physicians, placing the total number of pellagrins in the state at about 2100, of whom 1000 were under treatment.

A very brief summary of pellagra statistics by admissions to our hospital is: 1907, 4 cases; 1908, 42 cases, or 7 per cent of total admissions; 1909, 92 cases, or 15 per cent of admissions; 1910, 135 cases, or 20 per cent, and in 1911, up to November 1, 162 cases, or 27.7 per cent of admissions.

These statistics apply to newly admitted cases. In addition to these, cases of pellagra have seemingly developed in patients long resident. While some skepticism about the existence of such a disease as pellagra still persists in South Carolina and elsewhere in the United States, its presence is now quite generally admitted in 36 states besides our own.

Such statistics as those cited above raise the perennial question: Are we dealing with a new disease in epidemic form, or have we an increasing number of cases of a disease long endemic?

With slowly accumulated information, many physicians in South Carolina can now establish on retrospection the presence of pellagra in their practice, at least a decade before it was first reported, although the right diagnosis had not been made. We know, however, that Dr. H. E. McConnell, of Chester, S. C., did make the correct diagnosis in 1903. What evidence have we of its previous occurrence?

Under date of October 23, 1909, Acting Assistant Surgeon Sams, of the U. S. P. H. & M.-H. Service, reported from Charleston in the *Public Health Reports*, that "Pellagra, as such, has but recently been recognized in this city, the first case having come under treatment in March, 1908. There is a very general impression among the local physicians that pellagra has existed in the city for probably twenty years or more, and been incorrectly diagnosed as 'eczema,' 'dysentery,' 'intestinal tuberculosis,' etc., with dementia as a complication, or the reverse."

Besides the names erroneously applied to pellagra as quoted above by Dr. Sams, I may add several others: "syphilis," "malaria," "acute delirium," "hookworms," "dermatitis ex-foliativa," "tuberculosis of the skin," "liver spots," "scurvy," "neurasthenia," "meningitis," "nurses' sore mouth," "sprue," "meningo-encephalitis," "neuritis," etc.

In answer to the question: If pellagra has existed in this country for years, why has it not been recognized? I beg to present two quotations:

In Spitzka's *Treatise on Insanity* (New York, 1883, pp. 124-125), it is stated that "*Pellagrous insanity* will not be discussed in this volume as it does not occur in America, and it is limited to such countries as Italy, where maize forms a staple article of diet, and where the disease known as *pellagra*, which is attributed to the living on spoiled maize, occurs in an endemic form."

Osler says in his *Practice of Medicine* (6th edition, 1906, p. 384), "*Pellagra . . . occurs extensively in parts of Italy, in the south of France, and in Spain. It has not been observed in the United States.*"

It is not necessary to cite at this time other equally reliable writers to the same effect. The authorities said that pellagra did not exist in this country; therefore it was not looked for or, if suspected, a tentative diagnosis was given up out of respect to "authority." A. van Harlingen, the Philadelphia dermatologist, had stated, however, in 1882 that the disease was likely to appear in this country at any time.

The unpreparedness of the American medical mind to recognize pellagra, may best be illustrated by my citing again the fact that several years ago, one of the highest authorities on diagnosis in the United States, while visiting in South Carolina, rendered the opinion that a case now recognized as pellagra, was suffering from "glossitis." The recalling of such opinions may not be flattering to one's diagnostic acumen, but it was the custom in Europe also for more than a century for pellagra to be misinterpreted and misnamed.

We may, with advantage, recall what is said by Babes and Sion upon this subject: "It is probable that pellagra appeared in Europe long before its scientific description. It was, however, classed with other different forms of disease, probably with various

skin diseases, with diseases in general, especially with chronic intestinal and nervous diseases, as well as with mental diseases: especially would a disease with the very changeable symptoms of pellagra be considered as a manifestation of leprosy and scurvy."

So thorough and competent a student of the literature of pellagra as Sambon has this to say relative to the slowness with which the disease has always been recognized. "An important reason why pellagra was not described sooner, is that it was confounded with other diseases, such as eczema, leprosy, erysipelas, and scurvy. Pujati, who first established the presence of pellagra in Venetian territory where scurvy was common, named it "Alpine Scurvy." Odoardi retains this name because, he says, the two diseases have a common cause, produce like effects, and are cured by the same remedies. Sartogo (1791) called it "Mountain Scurvy," and Aldalli (1791) "Scorbutic Paralysis." Other writers referred to by Sambon have noted the resemblance of and alliance between scurvy and pellagra. It is important to bear this in mind in connection with clinical reports and opinions brought out further on in this paper.

The variety of names by which pellagra was called in Spain and Italy and France, is paralleled in the New World. For years before its final recognition in our hospital, the colored female attendants used to speak of it among themselves as the "rough skin" disease—a repetition of the *pelle agra* of the Italian vulgate. Its supposed relationship with scurvy when it was called "Alpine Scurvy" around Venice, is duplicated by the recorded opinions of early and recent physicians in our hospital, as I shall show later.

At the pellagra clinic held in 1910, a physician much interested in the disease asked me to look up the records of a colored woman whom he had sent to the hospital some years previously, as he was now satisfied she had pellagra. This is what I found:

Hospital Case No. 8990. B. B., colored woman. Admitted Aug. 16, 1899. Age 36 years. Married. Native and resident of Marlboro County. First attack. Duration three weeks before admission. Menses irregular. Physicians' certificate: "Patient has attacks of an hysterical nature and depression over pigmented condition of skin." Examination on admission: "Of stupid appearance. Pupils normal; tongue clean and dry; straight; speech incoherent; nutrition fair. Heart and lungs normal. Some cough. Temperature 98.4 degrees F. Pulse 98. Respiration 14. Weight 98 pounds. Sleep disturbed. Skin of hands black and peeling off. Patient

has a chronic diarrhea. No fever generally. Converses sensibly and is anxious to get well and go home." Patient failed steadily, and after a hospital residence of three and a half months, died. Assigned cause of death: "Intestinal tuberculosis." On November 5, 1910, an attendant employed in our hospital since 1897, who remembers the case, as it was one of the first of the kind she saw, recalls these facts about her: "The patient had a rough, thick, scaly, dark-colored rash on the backs of her hands. The inflammation was also around her mouth and upon the forehead. The feet were black and scaly. Her diarrhea was very bad. Before she died, she became rigid and had spasms."

That this was a case of unrecognized pellagra there can now be no doubt.

Following up this suggestion, I have gone through the hospital case-books of the last decade and have found notes also made by Dr. Sarah Campbell Allan on other patients that clearly indicate the presence from time to time of several forms of pellagra as we know it to-day. With your indulgence I will cite some of the most noteworthy:

No. 9081. C. S., colored woman. Resident of Beaufort County. Admitted October 22, 1899. "The patient seems quite feeble; has diarrhea, sore mouth, and appears to have been salivated; cervical glands enlarged, irritating vaginal discharge, excoriating the parts. Probably specific." The patient died November 9, 1899, the assigned cause of death being cerebral syphilis.

No. 9277. M. S. Colored girl from Spartanburg, aged 15 years. Admitted April 17, 1900, and died the following October. Became bed-ridden and, for some time before death, "had a bullous eruption all over the body of the nature of pemphigus. Assigned cause of death 'general tuberculosis.'"

No. 9576. F. E. White woman, aged 33 years. Married. Admitted December 2, 1900. Died of "general tuberculosis" after a hospital residence of one year and eleven months. It is noted that the "patient's health has been poor for the whole time of her stay. She had several carbuncles all over the body for months, and was treated with difficulty. Had frequent attacks of diarrhea and eczema of feet and legs, from dew poison, and was emaciated for months."

No. 10208. N. C. White woman. Single. 25 years old. Admitted April 28, 1902. The patient is described as "profane, suspicious, suicidal. In July she is recorded as not doing well. Hands dry and brown. Apprehensive. Was given thyroid extract, gr. v, t. i. d. November 24, losing ground. Bed-ridden, depressed and apprehensive, refused nourishment and became emaciated. Death followed a series of muscular spasms. Diagnosis: Meningo-encephalitis."

No. 10224. M. A. R. White woman. Single. Aged 59 years. Admitted May 1, 1902. Described as melancholy. Fears that she will kill her children and threatens to get into the well. On admission was restless and noisy at night. In May, 1904, she is reported as having eczema of the hands and having failed in health for several months, died from intestinal tuberculosis.

No. 11860. E. F. M. White woman. Married. Aged 45 years. Resident of Barnwell. Admitted June 20, 1905, suffering from acute melancholia. This patient was ill upon admission, with bowels badly deranged and a greenish vaginal discharge. Her bowels continued troublesome. Had constant cough, eczema on hands, which also did not respond to treatment. Grew steadily worse, and died November 9, 1905, from general tuberculosis.

These meager records have been carefully transcribed, but they have also been supplemented by the memories and revised opinions of the physicians and nurses who attended the patients, and it may be affirmed that all these cases represent some form of what is now called pellagra. The co-existence and diagnosis, however, of other diseases, notably tuberculosis and possibly syphilis, are not denied.

Of interest here is the comment of Lombroso that "In Trieste are found a number of cases of albuminuria and of phthisis associated with pellagra. One can thus understand how the older Italian physicians confounded pellagra with phthisis."

It will be recalled, as part of the recorded history of the subject, that Dr. Sandwith, of London, having rediscovered pellagra in Egypt in 1893, has written that towards the end of the last century, suspecting that it existed in our Southern States, he corresponded with medical authorities and local physicians in this country, but failed to establish his theory through the denial by his correspondents of its existence here.

I am, myself, now satisfied that pellagra has been in our institution for twenty years. Dr. J. L. Thompson, assistant physician, is of the same opinion regarding its presence since 1882.

Miss Irwin, now supervisor in the white women's department, who entered the service in 1884, is able to recall cases of pellagra among the white women almost from the date of her entrance; while a colored male attendant, J. R. Singleton, carries the memory of it back to about the same period among the colored men.

Dr. H. N. Sloan, of Ninety Six, S. C., asserts that pellagra was diagnosed as such in the early 70's in our asylum while he was assistant physician, but no written or printed record of the name has been found.

Dr. D. S. Pope, of Columbia, says that at least two cases of pellagra occurred in the South Carolina Penitentiary in the middle 80's. In making his diagnosis of these cases, he considered pellagra as a possibility, but ruled it out because the authorities said it did not occur in the United States.

In May, 1908, after studying, in one morning, eight or ten cases of pellagra in Chester, with Dr. H. E. McConnell, we visited Dr. A. F. Anderson, then over 90 years of age, but unusually clear mentally. Dr. Anderson had had a very extensive practice in Chester County for upwards of 60 years. He was also surgeon of the 6th South Carolina Regiment during the war. We described to him the cases we had just seen. He was much interested, but declared, greatly to our disappointment, that he could not recall ever having seen the clinical picture we described.

As evidence corroborative of recollections in South Carolina, I may state that the older physicians at the Georgia State Sanitarium at Milledgeville, think that pellagra has existed there probably for about twenty-five years; and those at the asylums at Raleigh and Goldsboro, N. C., for ten years prior to 1909, when inquiry was made. Dr. I. M. Taylor, of Morganton, N. C., places the probable occurrence of pellagra in the State Hospital there at 22 years prior to the same date. Drs. Wood and Bellamy, of Wilmington, N. C., have traced a case of pellagra in that state to 1889.

The earliest published accounts of pellagra in the United States, yet reported, were observed in asylums at Utica, N. Y., and Somerville, Mass., in 1863-64; also it is claimed that both pellagra and hookworms prevailed at the Andersonville, Ga., prison in 1864.

Of course, if pellagra has existed in South Carolina all these years, some cases of it, as now, must have been committed to our hospital, and *vice versa*, its occurrence in the asylum would indicate its presence in the state at large.

Furthermore, if pellagra has been present in the state and in the asylum, the deaths of patients suffering from it must have been recorded under other diagnoses, because of our ignorance of the condition. What then do the mortality tables of the annual reports show that may now be regarded as probable pellagra?

Following these reports backwards, I find, in the report for 1904, a case recorded under the diagnosis of dermatitis exfoliativa, for which diagnosis I am responsible. I remember the case

well, for it puzzled me greatly, and I made a strong appeal to the authorities, both of general practice and dermatology, for help. When the time came to sign the death certificate, the diagnosis recorded above was the best I was able to render. Of course, I know now that the poor woman, whose epidermis peeled off and whose hands and feet became gangrenous, died of pellagra of the so-called "wet" type.

In passing, I recall another case now known to be pellagra, in a colored woman at about the same time, which I diagnosed and treated as "scurvy." She is still living and has had only one relapse—last year—in the seven or eight subsequent years.

During my term of service since 1891, the most common diagnoses that I find as applied to fatal cases of probable pellagra, are: "intestinal tuberculosis," when the diarrhea was most pronounced; "general paralysis" and "meningo-encephalitis" for the cerebral and spinal cases; "syphilis," when the skin lesions were marked; and "acute delirium" for the fulminating mental type.

In the mortality tables of the earlier annual reports, I find from 1890 to 1878, "consumption" and "exhaustion" are the most commonly assigned causes of death, but besides these, "inanition," "marasmus," "anasarca," "dysentery," "ascites," and "gangrene" are frequent. Chronic dysentery and chronic diarrhea, which play so large a part in the earlier mortality lists, are comparatively rarely mentioned. To cite a case of this period, we may take that of: Miss E. L. White woman. Admitted from Charleston County, May 30, 1887. Died May 11, 1891, from "inanition." Previous history: "For about three years, this lady has been having hemorrhages from the uterus. For the last three months, these have been checked and the periods normal. She is restless by day, but sleeps well at night. Her mental derangement is increasing and she believes that she has a number of suitors, but her sister prevents her seeing them. Dr. X. [a famous specialist of New York], whose patient she has been, considers her a case of 'cerebral anemia' with prognosis bad."

The patient is described as a decided blonde, cross and irritable, with a mania for eating corn starch. She would quarrel with her nurse until she went to the laundry and got starch for her. She became emaciated and died from obstinate diarrhea. As pellagra is now understood, she no doubt had that disease, associated with

amylophagia. It will be recalled that Dr. C. C. Bass, of New Orleans, has recently directed attention to this association.

For some years previous to 1876, I find records of many cases of chronic diarrhea and dysentery, as well as one each of pemphigus and gangrene. In 1875, Dr. Ensor, the superintendent, assigns the death of four patients to "chronic diarrhea, resulting from organic disease in the great nerve centers," and in 1873, "six (deaths) from chronic diarrhea, resulting from disease of the brain." But we must not forget that chronic intestinal disorders have long been recognized as the bane of charitable institutions in this country and abroad. Therefore, the occurrence of these conditions does not necessarily denote the certain existence of pellagra. These notes are important chiefly in connection with present conditions and earlier records.

In 1864, Dr. Parker states that most of the causes of death were the result of long-continued mental and physical disease, including convulsions, chronic diarrhea, consumption and dropsy. In 1859, Dr. Parker states that the most prolific cause of death was the result of long-standing chronic diarrhea. In the case-books I find a note of purpura recorded as lasting over a year.

From the printed annual report of 1850, I take this extract, written by the superintendent, Dr. D. H. Trezevant, one of the most distinguished physicians ever connected with the institution, which he had served from its opening in 1828:

"In every institution many patients are admitted with shattered constitutions, whose vital powers are exhausted, and the recuperative energies of the system entirely destroyed. Such is usually the termination of those who become imbecile, either from neglect or mismanagement, in the earlier period of the attack; their brain and nervous system give way, and they die from bowel-complaint, dropsy, and the effect of exhausted powers.

"Many have been admitted this year with so feeble a circulation that their limbs and bodies have become purple, and after the closest and most sedulous attention, ulcerations would occur, and they died from the effects of the long-continued irritation. Many of those who have been some time with us have perished from anasarca, diarrhea, and epilepsy. We have now two in the institution threatened with purpura hemorrhagica, and as they are idiotic, they will most certainly die. It is very difficult for a lunatic to rally if once his bodily health becomes injured, and he suffers from the prostration consequent upon excessive discharge of the mucous surfaces. Diseases of the abdominal and thoracic viscera kill above one-half of our patients."

To get an unbiased opinion, I submitted this quotation to Dr. F. M. Sandwith, of London, who not only knows pellagra when he sees it, but also when he reads imperfect descriptions of it. This is what he has written me:

"The report of your predecessor is interesting and, of course, it may betoken pellagra, but I think it just as likely to have been the effect of scurvy. Sixty years ago, medical terms were not used with the precision that they have now-a-days."

The latter comment is, however, beautifully illustrated all through this investigation.

Dr. C. H. Lavinder, of the Marine-Hospital Service, has written from Savannah, Ga.:

"That typewritten copy from an old asylum report was of great interest. It looks very much like pellagra to me. That is, it seems to me as if they were having at least a few cases of pellagra."

A careful analysis of the statement of Dr. Trezevant, taken in connection with what precedes and follows, makes me believe that he had before him the clinical picture, obscure in its outlines, it may be, but still the picture of pellagra when he wrote the above paragraphs. No doubt, scurvy was a distinct entity to him and he would have recognized it. Pellagra was probably unknown to him as it was to most of his successors even to our day. Furthermore, cases of scurvy were not likely to occur among an agricultural people in the general population in ante-bellum days, and even if it did, to go unrecognized.

In looking up the clinical records of Dr. Trezevant's superintendency, I have found frequent references to cases of diarrhea or dysentery and exhaustion. But the proportion bears no relation or comparison with pellagra as we now have it in our statistics. Dr. Trezevant had seen practically all the cases under treatment for the 22 years prior to the report of 1850, first as regent (manager) and from 1836 as physician.

It has been impossible to go over, with care, all the case-books. In the period before 1850 there are brief notes by Dr. Trezevant upon cases of probable pellagra, but it will save time and space to reproduce at length a minutely recorded case, especially as it belongs to our very early history. The case is recorded in the

writing of Dr. James Davis, the first physician of the institution, in Case-book No. I, pp. 160-163:

James Craig. Aged 28 years. Single. Received from Lancaster District February 14, 1834—the 118th patient admitted to the lunatic asylum.

The patient had recovered three years previously from an attack of insanity lasting a month or two. The existing attack began suddenly three months before admission. The preliminary history states that the patient was violent, homicidal and suicidal. The records show that for a time after admission he received, without benefit, the usual revulsive treatment of the period.

April 15th, *Insomnia and profuse diarrhæa are noted.* (From this date the records are copied *verbatim et literatim*. See the attached zinc plate reproduction. Italics are used where the symptoms indicate pellagra.)

"May 2nd, Ord. 20 grs. P. G. Camph. to be added to each dose. 5th, Better rather than worse—Med. continuant. May 23d. More quiet—*bowels loose*.—Cont. Laxa. Medicines except the mercury—Discont: it as his *gums are inflamed with some pytalism*—27th, Continue camph. and Hyos:—June 4th, *Emaciates*—cont: med.—*has diarrhæa*—Give Cret. & catechu—7th, *Diarrhæa continues*—Ord. Calomel: 15 grs. in 5 gr. doses, 2 hours apart; with Cret: ppt.—Discontinue Hyos: & camph: for the present—10th, *Diarrhæa has ceased*—he is stronger—10th, *Tendency to diarrhæa*—Ord. an occasional dose of catechu & Chalk—15th, looseness disappeared—18th, *Very crazy*—natl. stool. Ord. Prussic acid: 1 drop every hour—19th—Acid produces no sensible effect. Cont: same doses today—tomorrow encrease to 2 gutt:—next day 3 gutt: 22nd, Produced no manifest effect except that there seems to be more mental composure. Ord. Suspension Meds. 25th, Same. 27th, decidedly better in mind—28th, *Seized with another return of diarrhæa*—Ord. Cret: & laud:—29th, *Diarrhæa very severe—liquid—but natural color generally—sometimes white & chylous.* Ord. Sp: Camph 15 gutt: with 10 grs. cret: every 2 hours. 30th, *Emaciates—bowels irregular*—Ord. Diet, boiled milk & dry bread—July 2d, Same—3d, *Bowels too loose at night.* Ord. Cal 5 grs. July 4th, Ord. Canell: Alb: 25 grs. bis in die—5th, Rather better. 7th, Do. Ord. 1 Dr. Solut. S. Quin. every morning—in addition to the canel. alb:—16th, bowels better—health improves—mind at times very crazy; but in the main better. 22nd, Same, bowels a little disposed to diarrhæa. Ord. Lac. Asafœtid: i. e. 10 grs. G. Asafœt: noct. maneq: dissolved in water—Aug. 10th, mind the same—*Bowels loose, especially of nights.* Ord. Sulphuret: Hydrogen 10 grs. noct. maneq:—Omit Lac. Asafœt:—12th, Mends—bowels less loose—20th, The sulphuret seems to control the diarrhæa—encrease the dose to 15 grs.—*The skin of the upper part of the feet turned of a sombre brown color—perhaps some form of the purpura*—Ord.—Med. continuant:—and a lotion of red oak bark decoctⁿ to feet—31st, Better—Bowels more regular—*feet that got into sores healing.* Sep. 5th, Bowels too loose again—the Hepar Sulphur: has been discontinued for a few days for want of the article—Ord. Commence with again—7th

Bowels too loose—mind the same—gains flesh—10th, *Bowels still loose—feet better*—no other change—Ord. A course of minute doses of calomel and Pul: Ant: say, 2 grs. P. Ant: & 1/16 of a gr. of calomel three times a day, morning, noon & night. My object is to promote a continued stimulation on the extreme vessels & nerves for a long period—so regulated as to avoid the sedative action of the mercury on the one hand and salivation on the other—16th, *The Purpura encreases and is spreading over the hands—as I suspect this affection is connected with a scorbutic habit*, I apprehend the mercurial course will disagree—Ord. Discont: mercurial, and substitute 6 grs. Acid: Tartar: Mane nocteque—23rd, no better—*Diarrhœa at night as bad as ever*—and for the last two days have given a wineglassfull of decoct: of red oak bark instead of the tartaric acid—but with no good effect.—Ord. Discont: Decoct: red oak bark; and administer eight drops of Tr. Iodine night and morning—to be encreased one drop every night—Oct. 4th, *Diarrhœa at night incorrigible*—Ord: Add a decoction of Liatris Spt: to each dose of Iodine—Oct. 5th, Bowels rather worse—Ord: Discontinue all med: except the decoctⁿ of the Liatris—give that pretty strong, half a tumbler night & morning. 8th, *Much puffing of the face and feet—purpura reappearing.—Bowels equally loose*—Stools more colored—Ord. Tr. Colchicum 8 gutt. noct: maneq: in addition to the Liatris—12th, Swelling diminished—bowels worse—Discont: colchicum & Liat. 15th, Same—*His case is decidedly scorbutic*—Ord. a diet of turnips and horseradish—25th Rather better—Nov. 1st, As perhaps the diarrhœa depends on ulceration of intestines, discontinue all other medicines, and give 1 gr. Sal. Mast: every morning and 2 grs. every night. Also continue diet of turnips. 10th, Rather better—17th, He is no better—Ord. Discontinue the Sal. Mast: & give 10 grs. Ext. Cicuta nocte maneque. 21st, *Gets worse*—22nd, *He expired*.

The original notes of this interesting case have been submitted for criticism among others to Drs. Lavinder and Grimm, of the U. S. Public Health and Marine-Hospital Service; to Dr. Robert Wilson, Jr., of Charleston, chairman of the South Carolina State Board of Health; and to Dr. J. J. Watson, of Columbia. They all independently agree that Dr. Davis has described an undoubted case of pellagra, as we know the disease to-day.

In commenting upon the case, Dr. Sandwith, the London pella-grologist, writes: "Many thanks for sending me the copy of the interesting record of 1834 from your hospital. The case may well have been pellagra, but I suppose it might be argued that it was scurvy with purpuric rash."

Scattered through this ancient case-book are records of similar cases, but none so complete. Some of the phrases used by the same writer in describing other cases may be noted, as "swelling

of the feet and legs with redness of the skin" of a patient who died of diarrhœa, December, 1835. Another patient with three to six ash-colored and very offensive evacuations a day, had a "tongue too red and glazed"; another with "face and legs puffed with a singular puffing, not edematous, such as all our fatal filth-eating patients are attended with, whether attended with diarrhœa, dysentery or chronic fever." Still another patient, S. J. M., admitted in 1828, had in January, 1832, "an eruption somewhat herpetic on his neck, shoulders and arms. February 20. Eruption considerable. March 19. Eruption continues. In ordinary health April to July." Another patient admitted April 3, 1834, had dysenteric symptoms.

"Aug. 1st, legs swelling. 14th, bowels morbidly irritable. 20th, bowels less irritable, legs very purple or rather red. Legs less swollen, but will die. Sept. 1st, swelling diminished: Diarrhœa increased. 5th, suddenly seized with spasms and cramps of left side and limbs. Diarrhœa continues. 7th, Delirious. 16th, Expired, emaciated to a skeleton, this morning."

Conclusions.—It appears to me from all these imperfect and detached records that there has been in our institution for many years, probably from its opening in 1828, an elusive malady which has puzzled all physicians in charge. Some of these cases have developed seemingly in the institution, but the large majority of such patients have been admitted with the disease, thus establishing the fact of the endemicity of the condition.

Opinions about the disease have varied with the physicians, but the similarity of the condition to scurvy has been recognized early and late, and for a long while—1834 to 1865—it was also considered of a purpuric nature.

If we admit upon the testimony of those now living the existence of pellagra in our asylum, and, therefore, in the state at large, for 30 or 40 years or more, how shall we deny its presence here 60 or 80 years or even longer, in the light of Dr. Trezevant's published opinions and Dr. Davis's clinical notes? On the other hand, how shall we explain the recent great increase in the number of cases? If pellagra had existed in its present proportions it could not have been overlooked altogether or been entirely concealed under erroneous diagnoses.

I think I may be pardoned for quoting a paragraph from our preliminary report to the State Board of Health in December, 1907:

"It is the opinion of the older members of the staff, that cases presenting pellagrous symptoms have appeared among our patients for some years, and the real nature of the malady has not been fully recognized and determined, but that latterly it is becoming much more frequent. These patients have come from various parts of the state, being possibly somewhat more numerous from the Piedmont section."

These early inferences have been fully confirmed by later experiences and investigations. Therefore, to one familiar with the conditions and disease-picture of pellagra as found in South Carolina to-day, these notes on medical history render it highly probable that pellagra has existed in the state for very many years, but under a varied diagnostic nomenclature.

In the early days, the prevailing fatal diseases as recorded in our hospital were "chronic diarrhea" and "dysentery"; in the middle or post-bellum period, these terms were largely supplanted by "consumption," "exhaustion," and such vague diagnoses as "inanition," "marasmus," and "anasarca"; while in the last two decades, "tuberculosis," "meningo-encephalitis" and "syphilis" have taken precedence over the older and time-honored diagnoses. Can we infer that under these terms some cases of pellagra may have been hidden and misinterpreted?

Making due allowance for differences in the personal equation of the several observers, we cannot believe that changes in endemic conditions have been so great or radical as is implied if we accept the theory that pellagra is a new disease in South Carolina. For evidence is accumulating which proves that as the diagnosis of pellagra becomes more common, some of these other diseases have notably decreased. Recognizing also that pellagra has always been a disease of most subtle and obscure nature and difficult to diagnose in new territory, we cannot but suspect that if such a malady exists among us to-day, to the extent statistics show, then the same condition must have been present in our state for a long while, under many of the disguises it has always assumed.

It cannot, however, be affirmed with equal probability that the disease has prevailed for nearly a century in anything like its present proportions. To explain this increase is one of the prob-

lems of the epidemiology of the disease. Probably pellagra has been endemic in the state for many years, but recently, from some cause, an epidemic has occurred.

As stated in the introduction, this is a presentation of a few interesting records, some memories and traditions and not a few inferences. From such data as I have presented, each may draw his own conclusions.

Personally, I cannot claim to have answered directly the interrogative title of my paper, but from the facts and traditions here assembled I feel convinced that pellagra is by no means a new disease in South Carolina and that it has probably been present in our State Hospital from its opening in 1828. Beyond that period, I have no data. It is worth remembering, however, that in 1829 the first publication about pellagra in France appeared. This event marked the beginning of many decades of interesting investigation and controversy now a part of the history of the disease.

[illegible]

[illegible]

to transmit a continued stimulation on the co-
nary effects & nerves for a long period - so regulated as to
avoid the excessive action of the nervous system on the co-
and salivation on the other. 10th. The nervous system
and is spreading over the hands - as I suspect this affection is
connected with a morbid habit. I suspect the nervous system
is not as bad as even - and for the last two days have given
a large quantity of smart. If not oak bark instead of the tartaric
acid bark, and I do not expect it. - And I suspect the nervous system
and nervous system. I do not expect it. - And I suspect the nervous system
Oct. 4th. I do not expect it. - And I suspect the nervous system
even of latent spasm. I do not expect it. - And I suspect the nervous system
rather worse. And I do not expect it. - And I suspect the nervous system
of the latent - I do not expect it. - And I suspect the nervous system
night of nervous system. I do not expect it. - And I suspect the nervous system
suffering. - I do not expect it. - And I suspect the nervous system
calculus. I do not expect it. - And I suspect the nervous system
12th. Swelling of the nervous system. I do not expect it. - And I suspect the nervous system
15th. Swelling of the nervous system. I do not expect it. - And I suspect the nervous system
has been. I do not expect it. - And I suspect the nervous system
depends on stimulation of the nervous system. I do not expect it. - And I suspect the nervous system
and give 1 gr. of smart. I do not expect it. - And I suspect the nervous system

Also continue diet of tincture - 10th. I do not expect it. - And I suspect the nervous system
is better. - I do not expect it. - And I suspect the nervous system
Centa root tincture. 21st. I do not expect it. - And I suspect the nervous system
is better. - I do not expect it. - And I suspect the nervous system

Proceedings of Societies.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTY-EIGHTH ANNUAL MEETING.

ATLANTIC CITY, N. J., TUESDAY, MAY 28, 1912.—FIRST SESSION.

The Association convened at 10 a. m. in the Southwest Pavilion of the Marlborough-Blenheim, Atlantic City, N. J., and was called to order by the President, Dr. Hubert Work, of Pueblo, Col.

THE PRESIDENT.—*Ladies and Gentlemen:* I take great pleasure in introducing to you the Mayor of Atlantic City, Hon. Harry Bacharach, who will deliver the address of welcome.

MAYOR BACHARACH.—*Mr. Chairman and Gentlemen:* For two reasons I regret very much that Senator Edge, who was to make the real address of welcome, is not with us today, but he is very busy, he being a candidate for re-election. The two reasons in particular are that the Senator usually goes around and makes my addresses for me while I simply show the audience what a fine looking Mayor they have. During the campaign before I was running for the office of Mayor of this city, when I received the nomination, I reported to the Committee and informed them that my "hat was in the ring," and I was ready to go out and make all the speeches necessary to elect me. They asked to be excused for a few minutes and when they returned they announced that it was decided that I was not to make any speeches if I was to be elected Mayor, but that they would send around some very eloquent speech-makers and let them tell of all the good qualities I possessed. Well, things went along all right until one night we went in the fourth ward, when the gentleman who had been making my speeches for me came to me and said: "This is the place I stop; I live in this ward and I do not intend to make any more speeches here; it is up to you now." I argued with him, but he said, "No, I stand pretty well with these people, they have elected me to office several times, and they may come to me and ask me to prove some of these things I have said." So I said, "All right, I'll do the best I can." I decided I would have to make some sort of a speech, so I got up and said, "Mr. Chairman and Gentlemen: I am not a speech-maker." Then for thirty minutes I talked to them and told them of the many good qualities of my friend. I noticed a very elderly gentleman looking at me very intently, scarcely taking his eyes from me, so I decided to talk right at him. After I had

finished my speech he came to me and said, "You have converted me all right, I am going to vote for you." I said, "I thank you very much, indeed, but I am curious to know what has converted you over to my side." He said, "Because you are such a truthful man." And I said, "My friend, may I ask how you came to form that opinion of me?" And he said, "Well, you said that you were not a speech-maker, and I'll be damned if you are." If my words lack elegance, they are at least sincere.

I have been informed by one of the gentlemen here that I was coming among some very "crazy doctors." Personally, I think your services around the country are very much needed at the present time, and particularly in New Jersey. Perhaps by tomorrow we shall show that we need your services. However, we are very pleased and proud to have you gentlemen in our city, which we think is the greatest seashore resort in the country. We believe we have the best conducted city in the country, irrespective of size, and, therefore, we are particularly proud to have men of your caliber come here to see for yourselves how our city is conducted. Our board-walk, which we consider is one of the best and on which we have at times as high as 250,000 people, is a place where women can go and stay from early morning until late at night without being molested in the least regard. We have no open saloons or anything of that kind; we have the most successful hotel men and the best equipped hotels of any resort in the country. Our citizens are broad-minded, able, progressive men, looking out for the welfare of our visitors at all times, and, therefore, we are particularly pleased to see men of your caliber here, and we hope you will go away perfectly satisfied with the entertainment you have had, and show the people of your own cities that Atlantic City is not the city it is painted in some of our newspapers, but is a very progressive city, which its residents feel proud of, and now, in behalf of her citizens, I want to welcome you, Mr. Chairman and you gentlemen, to our city.

"Come in the evening, or come in the morning;
Come when you're looked for, or come without warning.
A thousand welcomes you'll find here before you,
And the oftener you come the more we'll adore you."

And now, in behalf of our citizens, I desire to present to you the key to our city, knowing that it will not be misused, and assuring you that for one night, at least, "curfew shall not ring." (Applause.)

THE PRESIDENT.—In behalf of the Association I wish to thank you, Mr. Mayor, for this cordial welcome. There seems so little I can promise you in return for this welcome that I hesitate to know what to say, but as a return for the freedom of the city which you have so graciously bestowed, there may come a time—there often does come a time even in the lives of the most upright officials—when some one questions their acts, and there may come a time, but we hope not, when you may be called upon to explain something you have done officially. If that should be so and there seems no other way of escape, just call upon this Association and

we will furnish you men who will prove you competent or "incompetent" as you may desire. (Applause.)

We hope you will remain for the convention.

THE PRESIDENT.—I will now ask the Secretary to read the report of the Council.

REPORT OF THE COUNCIL TO THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

ATLANTIC CITY, MAY 28, 1912.

The Council met on the evening of May 27, 1912, in the council room of the Marlborough-Blenheim, Atlantic City, N. J.

The Council has received and transmits, herewith, the report of the Treasurer for the current year. Also a statement of the membership of the Association to date.

The Council recommends for election to active membership the following named physicians:

W. L. Allison, M. D., Fort Worth, Tex.; James M. Barstow, M. D., Council Bluffs, Ia.; Frederic C. Eastman, M. D., Brooklyn, N. Y.; Charles F. Gilliam, M. D., Columbus, O.; W. B. Kern, M. D., Hastings, Neb.; Daniel D. Lustig, M. D., San Francisco, Cal.; John J. MacPhee, M. D., New York, N. Y.; Jose A. Malberty, M. D., Havana, Cuba; Herman G. Matzinger, M. D., Buffalo, N. Y.; Edward Mellus, M. D., West Newton, Mass.; John C. Mitchell, M. D., Brockville, Ont.; Guy Payne, M. D., Cedar Grove, N. J.; Joseph P. Pecival, M. D., Dunning, Ill.; Abra C. Pettijohn, M. D., St. Joseph, Mo.; Mary E. Pogue, M. D., Lake Geneva, Wis.; Arthur W. Rogers, M. D., Oconomawoc, Wis.; Thomas W. Salmon, M. D., New York, N. Y.; Adin Sherman, M. D., Winnebago, Wis.; H. P. Sights, M. D., Hopkinsville, Ky.; H. M. Smith, M. D., Las Vegas, N. Mex.; Robert Percy Smith, M. D., Seattle, Wash.; F. S. White, M. D., San Antonio, Tex.; Alfred Gordon, M. D., Philadelphia, Pa.

The Council recommends the transfer of the following named Associate members to the Active class:

Charles E. Atwood, M. D., New York, N. Y.; Thomas E. Bamford, M. D., Syracuse, N. Y.; George B. Campbell, M. D., New York, N. Y.; A. J. Capron, M. D., Owego, N. Y.; Harry D. Earl, M. D., Jamestown, N. D.; Alberta S. Guibord, M. D., Boston, Mass.; Edward L. Hanes, M. D., Rochester, N. Y.; C. Floyd Haviland, M. D., Kings Park, N. Y.; George M. Kline, M. D., Hathorne, Mass.; Henry I. Klopp, M. D., Allentown, Pa.; Charles T. LaMoure, M. D., Gardner, Mass.; Andrew Macphail, M. D., Montreal, Que.; R. E. Mitchell, M. D., Eau Claire, Wis.; George O'Hanlon, M. D., New York, N. Y.; Samuel T. Orton, M. D., Worcester, Mass.; Mason W. H. Pitman, M. D., Bowdoinham, Me.; A. J. Rosanoff, M. D., Kings Park, N. Y.; Donald L. Ross, M. D., Mansfield Depot, Conn.; Walter G. Ryon, M. D., Albany, N. Y.; David A. Shirres, M. D., Montreal, Que.; Elbert M. Somers, M. D., Brooklyn, N. Y.; Walter A. Taylor, M. D., Trenton, N. J.; Guy H. Williams, M. D., Columbus, O.

The Council recommends that the following named physicians be elected to Associate membership:

Frederick E. Allen, M. D., Talmage, Cal.; Barton F. Andrews, M. D., Sonyea, N. Y.; Bruce B. Barber, M. D., Columbus, O.; E. C. Barnes, M. D., Guelph, Ont.; Nell W. Bartram, M. D., Kings Park, N. Y.; James Ramsdell Bloss, M. D., Huntington, W. Va.; William A. Boyd, M. D., Westport, Conn.; Sherman Brown, M. D., Kings Park, N. Y.; Howard M. Brundage, M. D., Columbus, O.; William A. Bryan, M. D., Cherokee, Ia.; Ross McC. Chapman, M. D., Binghamton, N. Y.; Howard T. Child, M. D., Hospital, Ill.; A. T. Colnon, M. D., Ogdensburg, N. Y.; David Corcoran, M. D., Central Islip, L. I.; Anna Craig, M. D., Kings Park, N. Y.; Ralph Deming, M. D., Fergus Falls, Minn.; Francis E. Devlin, M. D., Montreal, Que.; Percy L. Dodge, M. D., Poughkeepsie, N. Y.; Delmer D. Durgin, M. D., Kings Park, N. Y.; R. J. Dysart, M. D., Winnebago, Wis.; Richard G. Eaton, M. D., Kings Park, N. Y.; Halle Laura Ewing, M. D., Lincoln, Neb.; Bernard Feldstein, M. D., Kings Park, N. Y.; Drury L. Fish, M. D., Hospital, Ill.; Christopher Fletcher, M. D., Willard, N. Y.; Edward A. Foley, M. D., Jacksonville, Ill.; William E. Gesregen, M. D., Stamford, Conn.; George W. Gorrill, M. D., Buffalo, N. Y.; H. L. Goss, M. D., Osawatomie, Kans.; Julius E. Haight, M. D., Utica, N. Y.; Ross D. Helmer, M. D., Poughkeepsie, N. Y.; Hugh Carter Henry, M. D., Petersburg, Va.; O. S. Hubbard, M. D., Parsons, Kans.; Mary Keyt Isham, M. D., Columbus, O.; Wilma H. Jacobs, M. D., Hospital, Ill.; Florence A. King, M. D., Poughkeepsie, N. Y.; Robert King, M. D., Ogdensburg, N. Y.; Arthur G. Lane, M. D., Ogdensburg, N. Y.; Fletcher Langdon, M. D., Gallipolis, O.; Sylvester R. Leahy, M. D., Kings Park, N. Y.; William Leavitt, M. D., Utica, N. Y.; Peter MacNaughton, M. D., Hamilton, Ont.; H. P. Mahan, M. D., Parsons, Kans.; Herman Frank May, M. D., Poughkeepsie, N. Y.; Samuel F. Mellen, M. D., Poughkeepsie, N. Y.; Willis E. Merriman, M. D., Poughkeepsie, N. Y.; Arthur Selwyn Moore, M. D., Middletown, N. Y.; Glenn E. Myers, M. D., New York, N. Y.; H. C. Norquay, M. D., Selkirk, Manitoba; Harlam L. Paine, M. D., Hathorne, Mass.; Charles S. Parker, M. D., Kings Park, N. Y.; Ralph S. Pettibone, M. D., Williard, N. Y.; Horace Phillips, M. D., Philadelphia, Pa.; Clarence A. Potter, M. D., Collins, N. Y.; Harry D. Purdum, M. D., Sykesville, Md.; Charles F. Read, M. D., Hospital, Ill.; John R. Ross, M. D., Ogdensburg, N. Y.; J. T. Rooks, M. D., Hospital, Ill.; George A. Rowland, M. D., Columbus, O.; William Darrow Runyon, M. D., Clarinda, Ia.; Rose A. Russell, M. D., Cherokee, Ia.; Walter H. Sanford, M. D., Kings Park, N. Y.; C. von A. Schneider, M. D., Collins, N. Y.; Thompson P. Scott, M. D., Topeka, Kans.; O. E. Smith, M. D., Fergus Falls, Minn.; F. J. Sullivan, M. D., Hospital, Ill.; Nelson W. Thompson, M. D., Middletown, N. Y.; Tom B. Throckmorton, M. D., Cherokee, Ia.; William J. Tiffany, M. D., Binghamton, N. Y.; Leona E. Todd, M. D., Poughkeepsie, N. Y.; Walter L. Treadway, M. D., Jacksonville, Ill.; Henry L. Trenkle, M. D., Flint, Mich.; R. P. Truitt, M. D., Trenton, N. J.; Willard H. Veeder, M. D., Rochester, N. Y.; Eloise

Walker, M. D., Binghamton, N. Y.; Philip C. Washburn, M. D., Kings Park, N. Y.; Chester Waterman, M. D., Ogdensburg, N. Y.; Paul G. Weston, M. D., Warren, Pa.; Ray Lester Whitney, M. D., Worcester, Mass.; Harry D. Williams, M. D., Trenton, N. J.; William W. Wright, M. D., New York, N. Y.; Y. H. Yarbrough, M. D., Milledgeville, Ga.; K. H. Yeretzian, M. D., Stamford, Conn.

The Council has received the following applications for Active membership. In accordance with the constitution, final consideration of these will be deferred until next year.

Samuel T. Armstrong, M. D., Katonah, N. Y.; A. Fitzhugh Beverly, M. D., Austin, Tex.; Abraham A. Brill, M. D., New York, N. Y.; Charles Augustus Barlow, M. D., Spencer, W. Va.; G. W. Brown, M. D., Williamsburg, Va.; Louis Casamajor, M. D., New York, N. Y.; Frank L. Christian, M. D., Elmira, N. Y.; Eugene Cohn, M. D., Peoria, Ill.; William A. Crooks, M. D., Watertown, Ill.; E. J. Emerick, M. D., Columbus, O.; Ernest B. Emerson, M. D., Bridgewater, Mass.; James M. Forster, M. D., Toronto, Ont.; George H. Freeman, M. D., St. Peter, Minn.; Daniel H. Fuller, M. D., Boston, Mass.; William E. Gardner, M. D., Lakeland, Ky.; D. W. Griffin, M. D., Norman, Okla.; Ralph T. Hinton, M. D., Elgin, Ill.; W. M. Hotchkiss, M. D., Jamestown, N. Dak.; Robert Ingram, M. D., Cincinnati, O.; J. Allen Jackson, M. D., Philadelphia, Pa.; Frank H. Jenks, M. D., Rockford, Ill.; G. G. Kinson, M. D., Gallipolis, O.; Arthur Clyde Knight, M. D., Warm Springs, Mont.; Charles G. Lyon, M. D., Binghamton, N. Y.; Mary Lawson Neff, M. D., Boston, Mass.; M. P. Overholser, M. D., Nevada, Mo.; Christopher J. Patterson, M. D., Troy, N. Y.; Stephen R. Pietrowicz, M. D., Chicago, Ill.; Herbert William Powers, M. D., Kenilworth, Ill.; William B. Pritchard, M. D., New York, N. Y.; J. Anson Smith, M. D., Blackwood, N. J.; William G. Somerville, M. D., Memphis, Tenn.; Reeve Turner, M. D., New York, N. Y.; T. H. Weisenburg, M. D., Philadelphia, Pa.; B. F. Williams, M. D., Lincoln, Neb.; Edward H. Wiswall, M. D., Wellesley, Mass.

The Council has received the following applications for transfer from Active membership to the Associate class:

E. B. Funkhouser, M. D., Trenton, N. J.; William B. Cornell, M. D., Hathorne, Mass.

The Council has received the resignations of the following members:

E. Scott Blair, M. D., Patton, Cal.; G. L. Chamberlain, M. D., Placerville, Cal.; Edson C. Brown, M. D., Mansfield, O.; Ernest Jones, M. D., Toronto, Ont.

On motion, duly seconded, the report of the Council was accepted and adopted.

THE PRESIDENT.—The names of those recommended for election to membership will lie upon the table until tomorrow morning, in accordance with the constitution. The other names will be referred to the Council for final action next year.

We will now hear the report of the Treasurer.

Before submitting his report the Treasurer desires to state that the membership of the American Medico-Psychological Association at the present time, and the changes during the past year are as follows:

HONORARY MEMBERS.

Former number	22
Died	1
Present number	21

ACTIVE MEMBERS.

Former number	331
Associate to Active	17
Admitted	18
Resigned	3
Died	3
Present number	360

ASSOCIATE MEMBERS.

Former number	143
Admitted	15
Associate to Active	17
Died	1
Present number	140
Total membership	521

REPORT OF TREASURER, 1911-1912.

DEBITS.

Balance on hand June 22, 1911	\$3,296.65
Received for dues:	
Active members	1,725.00
Associate members	248.00
Advance dues:	
Abra C. Pettijohn, M. D.	5.00
H. P. Sights, M. D.	5.00
Charles F. Gilliam, M. D.	5.00
George H. Riggs, M. D.	5.00
Robert B. Lamb, M. D.	5.00
D. W. Griffin, M. D.	5.00
M. P. Overholser, M. D.	5.00
Francis E. Devlin, M. D.	2.00
Peter MacNaughton, M. D.	2.50
E. C. Barnes, M. D.	2.00
Sale of gummed lists	4.75
Check discount .....	.35
Interest on bank deposits	103.45
Total	\$5,419.70

CREDITS.

1911

June.	28.	Express (Denver meeting)	\$5.43
	29.	Robert J. Powers, stenographer, expenses at annual meeting, 1911	130.90
	29.	Expenses Hon. Alva Adams (Denver meeting)	10.30
	29.	Mercereau Printery (ballots)	2.50
	29.	Henry R. Stedman (expenses committee on expert testimony)	156.02
	30.	Mercereau Printery (receipts and stationery)	17.54
Aug.	7.	Mercereau Printery (envelopes)	23.19
Sept.	15.	Mercereau Printery (notices)	2.25
	20.	Adolf Meyer (circulars and postage)	9.70
Oct.	5.	Lord Baltimore Press (printing Transactions, list of members and express on same)	1,207.83
	25.	Mercereau Printery (notices)	1.00
Nov.	8.	Norman T. A. Munder & Co. (letterheads and envelopes)	6.25
	8.	Edward S. Grancy (freight and express)	6.30
Dec.	7.	Henry M. Hurd (Historical Committee)	100.00
	11.	Oscar P. Chase (postage)	10.00
	14.	Newton M. Shaffer (Assessment, Congress American Physicians and Surgeons)	423.98
	11.	Robert J. Powers (stenographer, reporting meeting, 1911)	60.00
	23.	Oscar P. Chase (clerical services)	5.00
	23.	Margaret Bloxham (clerical services)	5.00

1912

Jan.	8.	Oscar P. Chase (stamped envelopes)	21.24
	11.	Mercereau Printery (slips)	1.75
Feb.	27.	Mercereau Printery (preliminary program and application form)	18.25
Mar.	18.	Henry M. Hurd (Historical Committee)	100.00
Apr.	8.	Charles G. Wagner (telephone, telegrams and carfares)	3.00
	8.	Mercereau Printery (letterheads)	2.25
May	1.	Oscar P. Chase (postage)	15.00
	15.	Edward N. Brush, American Journal of Insanity	300.00
	16.	Margaret Bloxham (clerical services)	35.00
	16.	Mercereau Printery (programs, cards and envelopes)	65.50
	16.	Oscar P. Chase (postage)	8.42
	16.	Oscar P. Chase (clerical services)	20.00

 \$2,773.60

Balance on hand as follows:

Emigrant Industrial Savings Bank	\$1,712.82
Binghamton Savings Bank	734.31
City National Bank, Binghamton, N. Y.	198.97
Total	\$5,419.70

Respectfully submitted,

CHARLES G. WAGNER, *Treasurer*.

May 18, 1912.

On motion, duly seconded, the report of the Treasurer was received and referred to the Auditors.

THE PRESIDENT.—This very remarkable increase in membership speaks volumes for the industry and tact of our Secretary, and it is no little credit to the standing of the Association.

The next thing, gentlemen, on the program will be the report of the Committee of Arrangements.

DR. COTTON.—I have been requested to arrange for some sort of an evening's entertainment. Two or three suggestions were made; one was that we have a dinner in this hotel for all the members of the Association; another was to have a smoker. I did not go ahead and make any definite arrangements, but we can very easily have a smoker if enough members will express a desire to come. The Hotel Islesworth has a very good café, and the management will give it to us exclusively for the evening if the members wish it. I have taken no action in the matter, as I did not know if enough were interested to desire it.

THE PRESIDENT.—I might suggest that you consult with your committee and report at some later session.

We are now ready for the report of the Editors of the *AMERICAN JOURNAL OF INSANITY*.

To the Members of the American Medico-Psychological Association: Gentlemen.—On behalf of the Editorial Board, I am happy to be able to state that the affairs of the *AMERICAN JOURNAL OF INSANITY* are in a fairly prosperous condition.

Volume sixty-eight, which has just closed, comprises more than 780 pages and has, we believe can be truthfully said, been a better volume in many respects than any of its predecessors. The publishers have on hand a considerable cash balance, and the editors do not propose this year to ask any contribution from the treasury of the Association. The editors desire to obtain the authority of the Association to have prepared and publish an index of the volumes of the *JOURNAL* since its first issue. It is impossible to state or even estimate at present, the cost of such an index, but a large share of the expense can be borne by the *JOURNAL* and no doubt some return can be expected from the sale of the index.

The editors again take occasion to urge upon all members to subscribe for the JOURNAL, and upon the heads of institutions to also subscribe for their hospital libraries. The JOURNAL is the organ and the property of the Association, and certainly should receive its support.

Respectfully submitted for the Editorial Board.

EDWARD N. BRUSH.

THE PRESIDENT.—You have heard the very excellent report of the editors of the JOURNAL OF INSANITY. That department is also in a very prosperous condition.

On motion the report was accepted and adopted and the vouchers referred to the Auditors.

THE PRESIDENT.—Dr. Brush desires that the Auditing Committee return to him the vouchers for his files after they have been inspected.

DR. BRUSH.—I would ask that the suggestion in regard to publishing an index be referred to the Council for action at this meeting so that we will know whether it is desirable to publish the index.

THE PRESIDENT.—This of course will involve a little expense, we do not know how much, but Dr. Brush desires that this question be referred to the Council for their approval.

The next business is the appointment of a Nominating Committee. This is a duty which falls to the Chair, and I shall appoint on this committee the following members:

Dr. Charles W. Pilgrim, New York; Dr. Byron M. Caples, Wisconsin; Dr. G. H. Moody, Texas.

There will now be a recess for the purpose of registration of members and visitors. I hope every member and visitor present will register their names with the Secretary.

The following members registered and were in attendance during the whole or a part of the meeting:

Abbot, E. Stanley, M. D., Assistant Physician McLean Hospital, Waverly, Mass.

Allen, H. D., M. D., Superintendent Allen's Invalid Home, Milledgeville, Ga.

Applegate, C. F., M. D., Superintendent Mt. Pleasant State Hospital, Mt. Pleasant, Ia.

Arthur, Daniel H., M. D., Superintendent State Homeopathic Hospital, Gowanda, N. Y.

Ashley, Maurice C., M. D., Superintendent Middletown State Homeopathic Hospital, Middletown, N. Y.

Babcock, James W., M. D., Superintendent State Hospital for the Insane, Columbia, S. C.

Beemer, Nelson H., M. D., Medical Superintendent Hospital for the Insane, Mimico, Ont.

Beutler, W. F., M. D., Superintendent Milwaukee Asylum for Chronic Insane, Wauwatosa, Wis.

Blumer, G. Alder, M. D., Medical Superintendent Butler Hospital, Providence, R. I.

Bond, G. F. M., M. D., Proprietor and Physician-in-Charge Dr. Bond's House, 960 North Broadway, Yonkers, N. Y.

Briggs, L. Vernon, M. D., Physician to Mental Department, Boston Dispensary, 64 Beacon St., Boston, Mass.

Brush, Edward N., M. D., Physician-in-Chief and Superintendent Shepard and Enoch Pratt Hospital, Towson, Md.

Burgess, T. J. W., M. D., Medical Superintendent Protestant Hospital for Insane, Montreal, Que.

Burr, C. B., M. D., Medical Director Oak Grove Hospital, Flint, Mich.

Calder, D. H., M. D., Superintendent State Mental Hospital, Provo, Utah.

Campbell, George B., M. D., Chief Medical Examiner, State Hospital Commission, No. 1 Madison Ave., New York City.

Caples, B. M., M. D., Superintendent Waukesha Springs Sanitarium, Waukesha, Wis.

Carey, Harris May, M. D., Superintendent Eastern Pennsylvania State Institution for Feeble-Minded and Epileptic, Spring City, Pa.

Carlisle, Chester Lee, M. D., Second Assistant Physician Kings Park State Hospital, Kings Park, L. I.

Carpenter, Howard C., M. D., Second Assistant and Pathologist Hudson River State Hospital, Poughkeepsie, N. Y.

Carroll, Robert S., M. D., Medical Director Highland Hospital, Asheville, N. C.

Chase, Robert H., M. D., Medical Superintendent Friends' Asylum, Frankford, Philadelphia, Pa.

Clark, Fred P., M. D., Superintendent State Hospital, Stockton, Cal.

Clark, J. Clement, M. D., Superintendent Springfield State Hospital, Sykesville, Md.

Copp, Owen, M. D., Superintendent Pennsylvania Hospital for the Insane, Philadelphia, Pa.

Cotton, Henry A., M. D., Medical Director New Jersey State Hospital, Trenton, N. J.

Crumbacker, W. P., M. D., Superintendent Independence State Hospital, Independence, Ia.

Dewey, Richard, M. D., Physician-in-Charge Milwaukee Sanitarium, Wauwatosa, Wis.

Dold, Wm. Elliott, M. D., Medical Superintendent River Crest Sanitarium, Astoria, L. I.

Donohoe, George, M. D., Superintendent State Hospital for Inebriates, Knoxville, Ia.

Drewry, William Francis, M. D., Superintendent Central State Hospital, Petersburg, Va.

Dunton, Wm. Rush, Jr., M. D., Assistant Physician Sheppard and Enoch Pratt Hospital, Towson, Md.

Elliott, Robert M., M. D., Superintendent State Hospital, Willard, N. Y.

English, Walter M., M. D., Superintendent Hospital for Insane, Hamilton, Can.

Eyman, Henry C., M. D., Superintendent Massillon State Hospital, Massillon, O.

Fisher, E. Moore, M. D., Senior Assistant Physician New Jersey State Hospital, Greystone Park, N. J.

Fordyce, O. O., M. D., Superintendent Athens State Hospital, Athens, O.

French, Edward, M. D., Superintendent Medfield State Asylum, Harding, Mass.

Frost, Henry P., M. D., Superintendent Boston State Hospital, Dorchester Centre, Mass.

Fuller, Solomon C., M. D., Pathologist Westboro State Hospital, Westboro, Mass.

Gilliam, Charles F., M. D., Superintendent Columbus State Hospital, Columbus, O.

Gorst, Charles, M. D., Superintendent Wisconsin State Hospital, Mendota, Wis.

Green, E. M., M. D., Clinical Director Georgia State Sanitarium, Mill-edgeville, Ga.

Gundry, Alfred T., M. D., Medical Director Gundry Sanitarium, Catonsville, Md.

Gundry, Richard F., M. D., Medical Director and Proprietor The Richard Gundry Home, Catonsville, Md.

Halsey, Luther M., M. D., Chairman Medical Committee New Jersey State Hospital, Williamstown, N. J.

Hammond, F. S., M. D., Pathologist New Jersey State Hospital, Trenton, N. J.

Hancker, William H., M. D., Medical Superintendent Delaware State Hospital, Farnhurst, Del.

Harmon, F. W., M. D., Superintendent Longview Hospital, Cincinnati, O.

Harrington, Arthur H., M. D., Superintendent State Hospital for Insane, Howard, R. I.

Harris, Isham G., M. D., Superintendent Mohansic State Hospital, Yorktown, N. Y.

Herring, Arthur P., M. D., Secretary State Lunacy Commission, 330 North Charles St., Baltimore, Md.

Heyman, M. B., M. D., First Assistant Physician Central Islip State Hospital, Central Islip, L. I.

Hill, Charles G., M. D., Physician-in-Chief, Mt. Hope Retreat, Baltimore, Md.

Hill, Samuel S., M. D., Superintendent State Asylum for Insane, Wernersville, Pa.

Hills, Frederick L., M. D., Superintendent Eastern Maine Insane Hospital, Bangor, Me.

Houston, John A., M. D., Superintendent Northampton State Hospital, Northampton, Mass.

Howard, Eugene H., M. D., Medical Superintendent State Hospital, Rochester, N. Y.

Howard, Herbert B., M. D., Superintendent Peter Brent Brigham Hospital, Boston, Mass.

Hummer, H. R., M. D., Superintendent and Special Disbursing Agent Asylum for Insane Indians, Canton, S. Dak.

Hurd, Arthur W., M. D., Superintendent State Hospital, Buffalo, N. Y.

Hurd, Henry M., M. D., Secretary Johns Hopkins Hospital, Baltimore, Md.

Hutchings, Richard H., M. D., Superintendent St. Lawrence State Hospital, Ogdensburg, N. Y.

Jones, L. M., M. D., Superintendent Georgia State Sanitarium, Milledgeville, Ga.

Kilbourne, Arthur F., M. D., Superintendent State Hospital, Rochester, Minn.

La Moure, Charles T., M. D., Superintendent Gardner State Colony, Gardner, Mass.

Langdon, F. W., M. D., Medical Director Cincinnati Sanitarium, Cincinnati, O.

Mabon, William, M. D., Superintendent and Medical Director Manhattan State Hospital, Ward's Island, New York City.

May, James V., M. D., Medical Member New York State Hospital Commission, Albany, N. Y.

Meredith, H. B., M. D., Superintendent and Physician State Hospital for Insane, Danville, Pa.

Miller, Henry W., M. D., Superintendent Maine Insane Hospital, Augusta, Me.

Mills, Charles K., M. D., Professor of Neurology, University of Pennsylvania, Philadelphia, Pa.

Mitchell, H. W., M. D., Superintendent State Hospital, Warren, Pa.

Mitchell, J. C., M. D., Medical Superintendent Hospital for Insane, Brockville, Ont.

Moody, G. H., M. D., Superintendent Dr. Moody's Sanitarium, San Antonio, Tex.

Mosher, J. M., M. D., 170 Washington Ave., Albany, N. Y.

Moulton, A. R., M. D., Senior Assistant Physician Pennsylvania Hospital for Insane, Philadelphia, Pa.

Orth, H. L., M. D., Superintendent and Physician Pennsylvania State Lunatic Hospital, Harrisburg, Pa.

Orton, Samuel T., M. D., Pathologist State Hospital, Worcester, Mass.

Payne, Guy, M. D., Medical Superintendent Essex Co. Hospital for Insane, Cedar Grove, N. J.

Perry, Middleton L., M. D., Superintendent Kansas State Hospital for Epileptics, Parsons, Kans.

Pettijohn, Abra C., M. D., Superintendent State Hospital No. 2, St. Joseph, Mo.

Pilgrim, Charles W., M. D., Medical Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.

Pomeroy, E. H., M. D., Bradentown, Fla.

Priddy, A. S., M. D., Superintendent Virginia State Epileptic Colony, Madison Heights, Va.

Richardson, Wm. W., M. D., Chief Physician, Department for Men, State Hospital for Insane, Norristown, Pa.

Ripley, Horace G., M. D., Assistant Superintendent Taunton State Hospital, Taunton, Mass.

Rosanoff, A. J., M. D., First Assistant Physician Kings Park State Hospital, Kings Park, N. Y.

Russell, William Logie, M. D., Medical Superintendent Bloomingdale Hospital, White Plains, N. Y.

Ryon, Walter G., M. D., Medical Inspector for State Hospital Commission, 36 Brookside Ave., Menands, Albany, N. Y.

Salmon, Thomas W., M. D., National Committee for Mental Hygiene, 50 Union Square, New York City.

Sandy, William C., M. D., Assistant Physician New Jersey State Hospital, Trenton, N. J.

Scribner, E. V., M. D., Medical Superintendent State Hospital, Worcester, Mass.

Searcy, James T., M. D., Superintendent of Alabama Insane Hospitals, Tuscaloosa, Ala.

Shepherd, A. F., M. D., Member Ohio Board of Administration, Columbus, O.

Sherman, Adin, M. D., Superintendent Northern Hospital for the Insane, Winnebago, Wis.

Sights, H. P., M. D., Superintendent Western State Hospital, Hopkinsville, Ky.

Skoog, A. L., M. D., Associate Professor Neurology, University of Kansas, Kansas City, Mo.

Smith, Samuel E., M. D., Medical Superintendent Eastern Indiana Hospital for Insane, "Easthaven," Richmond, Ind.

Snively, E. H., M. D., Assistant Physician Essex Co. Hospital for Insane, Cedar Grove, N. J.

Somers, E. M., M. D., Superintendent Long Island State Hospital, Brooklyn, N. Y.

Southard, E. E., M. D., Director Psychopathic Dept., Boston State Hospital, Boston, Mass.

Spencer, Elizabeth, M. D., Chief Resident Physician, Dept. for Women, State Hospital, Norristown, Pa.

Stick, H. Louis, M. D., Superintendent Worcester State Asylum, Worcester, Mass.

Taylor, Isaac M., M. D., Resident Physician and Superintendent Broad-oaks Sanatorium, Morganton, N. C.

Terflinger, F. W., M. D., Medical Superintendent Northern Hospital for Insane, "Longcliff," Logansport, Ind.

Thompson, Charles E., M. D., Executive Officer State Board of Insanity, State House, Boston, Mass.

Thompson, W. N., M. D., Physician and Superintendent Hartford Retreat, Hartford, Conn.

Tuttle, George T., M. D., Medical Superintendent McLean Hospital, Waverly, Mass.

Voldeng, M. N., M. D., Superintendent State Hospital, Cherokee, Ia.

Wade, J. Percy, M. D., Medical Superintendent Spring Grove Hospital, Catonsville, Md.

Wagner, Charles G., M. D., Medical Superintendent Binghamton State Hospital, Binghamton, N. Y.

White, Moses J., M. D., Medical Superintendent Milwaukee Hospital for Insane, Wauwatosa, Wis.

Williams, Tom A., M. D., 1758 K, Washington, D. C.

Wilson, William T., M. D., Medical Superintendent Hospital for Insane, Penetanguishene, Ont.

Winterode, Robert Preston, M. D., Superintendent Crownsville State Hospital, Crownsville, Md.

Witte, Max E., M. D., Superintendent State Hospital, Clarinda, Ia.

Woodbury, Frank, M. D., Secretary to Committee on Lunacy, Board of Public Charities, 717 Bulletin Building, Philadelphia, Pa.

Woodson, C. R., M. D., Superintendent Dr. C. R. Woodson's Sanitarium, St. Joseph, Mo.

Work, Hubert, M. D., Superintendent Woodcroft Hospital, Pueblo, Col.

Yeretjian, K. H., M. D., Assistant Physician State Hospital, Columbus, O.

The following visitors and guests of the Association registered their names with the Secretary:

Ashley, Mrs. Maurice C., Middletown, N. Y.

Ashley, Miss Marguerite, Middletown, N. Y.

Ashley, Miss Rhea Evelyn, Middletown, N. Y.

Beers, Clifford W., Secretary National Committee for Mental Hygiene, 50 Union Square, New York City.

Brumback, J. Edward, M. D., Assistant Physician Eastern State Hospital, Williamsburg, Va.

Burnett, S. Grover, M. D., Medical Superintendent Burnett Sanitarium, 3100 Euclid Ave., Kansas City, Mo.

Caples, Mrs. B. M., Waukesha, Wis.

Carlisle, Mrs. Chester Lee, Kings Park, N. Y.

Carothers, T. R., M. D., Regent State Hospital for Insane, Rock Hill, S. C.

Chittenden, Arthur S., M. D., Binghamton, N. Y.

Clark, Mrs. J. Clement, Sykesville, Md.

Dominick, Fred H., M. D., Chairman Board of Regents S. C. State Hospital for Insane, Newberry, S. C.

Elwood, Everett S., Executive Secretary Committee on Mental Hygiene State Charities Aid Association, 105 E. 22d St., New York City.

Fisher, Mrs. E. Moore, Greystone Park, N. J.

Gardiner, Thomas W., Member Kentucky State Board of Control, Madisonville, Ky.

Gardiner, William E., M. D., Superintendent Central State Hospital, Lakeland, Ky.

Green, M. K., M. D., Assistant Physician Wisconsin State Hospital, Mendota, Wis.

Griffin, D. W., M. D., Superintendent Oklahoma Sanitarium, Norman, Okla.

Herr, Daniel C., Member Board of Trustees, Pennsylvania State Lunatic Hospital, Harrisburg, Pa.

Hotchkiss, W. M., M. D., Superintendent North Dakota State Hospital, Jamestown, N. Dak.

Hotchkiss, Mrs. Margaret, Jamestown, N. Dak.

Hutchings, Mrs. Richard H., Ogdensburg, N. Y.

King, Florence A., M. D., Hudson River State Hospital, Poughkeepsie, N. Y.

Markens, Edward W., M. D., 444 High St., Newark, N. J.

Moody, Mrs. G. H., San Antonio, Tex.

Neff, Mary Lawson, M. D., Supervisor Occupational Therapy, State Board of Insanity, State House, Boston, Mass.

Nevett, C. A., M. D., Superintendent Eastern State Hospital, Lexington, Ky.

Patterson, Christopher J., M. D., Physician-in-Charge, Marshall Sanitarium, Troy, N. Y.

Scribner, Mrs. E. V., Worcester, Mass.

Selby, John H., M. D., Director Roentgen Laboratory, St. Mary's Hospital, Rochester, Minn.

Skinner, N. N., M. D., Consulting Surgeon Willard State Hospital, 447 Main St., Geneva, N. Y.

Tulledge, E. Kilbourne, 843 N. 63d St., Philadelphia, Pa.

Voldeng, Mrs. M. N., Cherokee, Ia.

Wagner, Mrs. Charles G., Binghamton, N. Y.

Wall, Garrett S., President State Board of Control Charitable Institutions, Maysville, Ky.

Wescott, C. C., M. D., Atlantic City Hospital, Atlantic City, N. J.

Weisenburg, T. H., M. D., Prof. Clinical Neurology and Neuropathology Medico-Chirurgical College, Philadelphia, Pa.

THE PRESIDENT.—The meeting will come to order. Heretofore, memorial notices of deceased members have been read by title. The personal feeling that we owe these men who have worked in the Association demands

that we pay their memory more respect, and I will state that those who have prepared these memorials will be expected to read them as their names are called.

The following memorial notices were read:

Dr. J. Elvin Courtney, by Robert B. Lamb, M. D. (read by the Secretary); Dr. J. N. Whitaker, by L. M. Jones, M. D.; Dr. I. W. Blackburn, by William A. White, M. D. (by title); Dr. George F. Jelley, by Walter Channing, M. D. (read by the Secretary); Dr. Robert E. Doran, by William L. Russell, M. D.; Dr. D. R. Wallace, by G. H. Moody, M. D.; Dr. A. J. Lyons (by title); Dr. Morris S. Guth, by H. A. Hutchinson, M. D. (by title); Dr. James McKee, by John McCampbell, M. D. (by title); Dr. Horace W. Eggleston, by Charles G. Wagner, M. D. (by title).

THE PRESIDENT.—By some trick of fate, or otherwise, and I rather suspect the Secretary, the President's address was made to appear on the program immediately following the memorial notices. I presume the President is entitled to read his own memorial notice.

I will ask Dr. Searcy, the Vice-President, to take the chair.

DR. SEARCY (presiding).—The next business in order is the address by the President of the Association, Dr. Work.

The President of the Association, Dr. Hubert Work, then read his address, "The Sociological Aspect of Insanity and Allied Defects," which was received with prolonged applause.

DR. BURR.—I move that a vote of thanks be extended to the President for his very able and interesting address. It brings to us a matter of vital importance at the present time, one which is very much discussed, and one which will probably be brought before the Association for future discussion. It is a subject that needs to be deliberated upon very carefully, and I trust it will be given the dignified and careful consideration that the question requires, especially at the hands of a body like this.

DR. BRUSH.—I have listened to many addresses before this Association, but I do not know of one that has given more subjects for thought. The President has sounded the war-cry and it behooves us to enlist in the battle which he proposes to lead us in. I am happy to second the motion.

DR. BURGESS.—Dr. Work has referred to my own work. He and I have been working on the same lines for a good many years. I know of a certain Journal that went so far as to refuse to publish an article on "Sterilization," I think it is a disgrace, and it is for us to start the ball rolling and make the rest of the men "toe the mark."

DR. HILL.—In supporting this question, I would like to make mention of the quaintness of expression and the logical utterance of the doctor. I take a great deal of pleasure in supporting this motion.

DR. SEARCY.—I know I voice the sentiment of this Association when I thank you for this able, instructive and interesting address. I am glad you have taken the sociological standpoint. There is no theme in this country that is attracting more attention than medical sociology and the center of it is psychology and psychiatry. Human improvement rests upon an understanding of them and human deterioration is explained principally by deterioration of the psychic center. There is no more active and progressive subject for philanthropists than human deterioration. We witness it on all sides and all society is looking to such associations as ours for the solution of it.

I thank you for your address, and will the others, by a rising vote, so express themselves.

The motion was carried unanimously.

THE PRESIDENT.—I have been very greatly touched by the complimentary things said of my paper, and particularly by the sources from which they have emanated. I appreciate them very much.

On motion the meeting adjourned.

AFTERNOON SESSION.

THE PRESIDENT.—The Association will please come to order.

The first paper on the program is, "Treatment of the Insane in British Columbia," by Dr. C. E. Doherty, but as Dr. Doherty is not present, Dr. Wilson has consented to read this paper.

Dr. C. E. Doherty's paper was then read by Dr. Wilson.

THE PRESIDENT.—It is with very great regret that Dr. Doherty is not present. I have no doubt the members would have been pleased to ask him many questions, which I presume the reader of the paper would not be able to answer.

We have the honor of having with us as a guest, this afternoon, a man who needs no introduction to this Association. He is without doubt the living master of American medicine. He is also the President-elect of the American Medical Association. I induced him to visit us this afternoon on the promise that I would not ask him to make a speech, but I am sure the members of the Association will absolve me from that promise. Dr. Jacobi had an additional reason for coming; he was particularly anxious to hear the paper of his old friend, Dr. Henry M. Hurd. I will ask Dr. Jacobi to say a few words to the Association, and then I will ask him to preside while his old friend reads his paper.

DR. JACOBI.—*Mr. President and Gentlemen:* If, as your President has said, Dr. H. is not one of the members of the American Medical Associa-

tion and will not be under my rule next week, I hope and expect that everybody else here will be. I want the American Medical Association as big and as great as it can possibly be made, and that is why I want all of you present and to be members.

In addition to what your President has said of me just now, I will add that he told me I must not speak more than two minutes. I always keep my promise, and therefore, I shall only say that I thank you for this reception, which I consider due to the fact that I happen to be the President-elect of the American Medical Association.

THE PRESIDENT.—No, no, not at all.

DR. JACOBI.—I am much obliged to you, but it should be so, and I thank you as President of the American Medical Association.

This Association of yours I have known for a good many years. I am interested, like every doctor should be, in the subjects that make up your programs from year to year. I have known of your Society a good deal through my old friend, Dr. Gray, whom some of you—perhaps not the younger men—will remember. I remember quite well how he worked and how he tried to be as scientific and exact in all his doings as possible. Some of you may remember his first attempts at photographing microscopic conditions of cells and of the brain. He was very much in need of help. At one time it was impossible for him to find a draughtsman and microscopist and finally he had to be satisfied with the services of a botanist. Some of you may remember the name of Dr. Deecke, who originally was a micro-chemist and botanist, later pathologist. For a number of years he succeeded in doing much histological work, and I think for his time, he succeeded quite well. I still possess plates of his which were quite creditable.

I wish to say one word more and that is this: I find, though your Association dates from 1844, to my mind you are a great deal younger than you were at that time in spite of your age. It is true you have gone through the same course that medicine has gone through and particularly American medicine. Fifty or sixty years ago when I began to dabble in medicine, I thought American medicine was rather old. It has become more and more young until today certainly American medicine is as young as medicine of any other country, and I am quite certain it will continue to be so. You certainly will not fail.

THE PRESIDENT.—We may say of the speaker what he has said of this Association—that instead of growing older he grows younger.

The following papers were read:

“Three-quarters of a Century of Institutional Care of the Insane in the United States,” by Henry M. Hurd, M. D., Baltimore, Md. Discussed by Drs. Woodbury and Brush.

"Immigration as a Problem in the State Care of the Insane," by James V. May, M.D., Albany, N. Y. Discussed by Hon. Goodwin Brown, Drs. Campbell, Burr, Burgess, Harrington, and Salmon.

"State Care of Boston's Insane," by Henry P. Frost, M.D., Dorchester Centre, Mass.

"Insanity Among the Indians," by Henry R. Hummer, M.D., Canton, S. Dak.

THE PRESIDENT.—I will now ask Dr. Cotton to make a report for the Executive Committee.

DR. COTTON.—I beg to report that we will have a "Smoker" tomorrow evening. I will pass this paper around and all those who wish to come will please put their names down and then we will know about how many people will attend.

THE PRESIDENT.—How much will it cost?

DR. COTTON.—The "Smoker" will be held at the Islesworth Café, and the tickets will be one dollar apiece.

Adjournment.

EVENING SESSION.

THE PRESIDENT.—The Association will please come to order. The first thing on the program this evening is a paper entitled, "Conversion," by Andrew Macphail, M.D., Montreal, Que., to be read by Dr. T. J. W. Burgess.

DR. BURGESS.—I think, perhaps, this paper should be read by title. What I mean is this: Dr. Macphail is probably, without exception, one of the brainiest men we have in Canada, and we have a good many of them. Now this paper of his if I gave it to you in full would take three hours to read. I have made an abstract that would take fifteen or twenty minutes to read, but probably it would be better to have it read by title. The idea of the paper is this: He is trying to cipher out whether conversion is a matter of instinct or intellect, and the paper is so boiled down it is hard to follow. I think if you read it in print you would appreciate it, but as to reading it in abstract, it is hard to follow.

DR. HURD.—I move it be read by title.

THE PRESIDENT.—The motion has been made, duly seconded and carried that this paper be read by title. It is so ordered, and Dr. Burgess will be excused.

The next on the program is a paper entitled, "Cortical Representation of Emotional Expression, with a Discussion of Some Points in the General

Nervous Mechanism of Expression in its Relations to Organic Nervous Disease and Insanity," by Charles K. Mills, M. D., Philadelphia, Pa. Discussed by Dr. E. E. Southard.

This paper was followed by moving pictures illustrative of emotional expression and of a variety of phenomena in insanity and nervous disease by T. H. Weisenburg, M. D., of Philadelphia, Pa.

Adjournment.

WEDNESDAY, MAY 29, 1912, 10 A. M.

The meeting was called to order by the President.

THE PRESIDENT.—The first thing this morning is the report from the Chairman of the Committee on Affiliation with the Congress of American Physicians and Surgeons, Dr. C. R. Woodson.

DR. WOODSON.—The committee appointed by the Chair at the 1911 meeting to pass upon the resolution in regard to the severance of this Association with the Congress of American Physicians and Surgeons, will submit a majority report and a minority report, and I suggest, Sir, that you have the majority report first, of which Dr. Brush has charge, and I will submit the minority report later.

THE PRESIDENT.—Dr. Brush will you submit your report?

DR. BRUSH.—I beg to submit the following:

To the American Medico-Psychological Association: In reporting upon the matter which was referred to your committee, that is, the severance of the relations of the American Medico-Psychological Association with the Congress of American Physicians and Surgeons which meets triennially in Washington, your committee feels that some review of the facts pertaining to our relations with the Congress may be desirable. At a meeting of the American Medico-Psychological Association in Richmond, in May, 1900, the Council in its report recommended that the Association become affiliated with the Congress of American Physicians and Surgeons, and suggested that a committee of one, Dr. Brush of the present committee, be appointed to negotiate in reference to the matter and perfect the arrangements.

As the Congress did not meet again until 1903 and as there was no meeting of its Executive Committee until some time before the meeting of the Congress, the committee appointed to perfect arrangements for affiliation with the Congress was not able to report until the meeting of the Association in Washington in May, 1903. He was then able to report that all the arrangements had been made and that the meeting then being held was in connection with the Congress then in session in Washington. In

his report he said: "It has been, perhaps, the misfortune of psychiatry that its work has, heretofore, been considered as something apart from the interests and progress of general medicine. We have, therefore, been accused of lagging behind in the march of medicine. This affiliation with the progressive men of our sister societies, men who are every one of them special workers in some one or more departments of scientific medicine will bring us somewhat more fully into view of our professional brethren, and our work, good, bad or indifferent, will be judged by a body of educated and keen critics. We will triennially be brought to what may be called a great clearing-house of medical thought. Such contact and criticism, such exchange of views and comparison of methods as we shall here have opportunity for, can but be to our advantage."

Nothing that has occurred since has altered the conditions to which attention was then called and your committee believes that our Association with the members of the special societies forming the component part of the Congress has been of benefit to members of this Association and has served to bring its work more thoroughly to the knowledge of the physicians of the country. The needs and advantages are, we believe, even more obvious than when the affiliation was entered into.

There has been in the past too much of a tendency on the part of physicians connected with hospitals for the insane, to be isolated from association with fellow members of the profession engaged in other special lines of work, and this has resulted in the view being taken by many members of the profession that no real medical work of value is being done in hospitals for the insane, and that the medical officers of these institutions are merely the keepers of large boarding houses for mental cases, who satisfy themselves with throwing the protection of the institution around those in their charge without doing anything to really advance the cause of scientific medicine or for the prevention or treatment of insanity. Nothing can do more to overcome this mistaken view than occasional opportunities for those who in the past have been disposed to be our critics to meet with us to hear our papers which are read and the discussions which are called forth and to observe that in fact as much is being done in psychiatry as in any other department of medical study and practice. The members of our Association are also given an opportunity to see something of the work of other organized medical bodies, and, perhaps, with equal benefit, to meet personally and compare notes with many of their members.

The difficulties which have arisen in regard to our Association with the Congress seem to have been largely of a financial nature and have grown out of the large assessments which have been laid upon this Association because of its size, to pay the expenses of the Congress. It has been a rule of the Executive Committee, which has in its hands the government and direction of the Congress to assess each association pro rata, and our Association having a larger number of members, Active and Associate, than any other of the component societies of the Congress, has had a larger burden of the expense to bear. The assessment comes, however,

only every third year, and adds nothing to the dues of each member of this Association, who, nevertheless, receives a volume of the Transactions of the Congress, which is of considerable value; the last one issued being a volume of over 450 pages.

The last assessment which was made took into consideration in the enumeration of the members, not only the Active members in the Association, but the Associate as well, and I am informed that the Executive Committee of the Congress recognizes that this was an error and that in the future arrangements will be made by which this body will only be assessed in proportion to the Active members.

The Congress meets next year and the committee recommends that we continue our affiliation, and that our members on the Executive Committee of the Congress both Active and Alternate, be instructed to endeavor to make arrangements by which the Association shall be relieved, if possible, of some of the expense of the Congress which has, heretofore, fallen upon us, which we are assured can be done.

When we have met with the Congress our meetings have been more generally attended than have the meetings which have been held at any other place, with the possible exception of the meeting in 1907, the second time we met with the Congress, but as part of this meeting was held at Washington and part at the Jamestown Exposition many members refrained from attending.

Respectfully submitted,

WILLIAM L. RUSSELL,
EDWARD N. BRUSH.

THE PRESIDENT.—Dr. Woodson will now present the minority report of this Committee.

DR. WOODSON.—I desire to present the following report:

To the Officers and Members of the American Medico-Psychological Association: Gentlemen.—At the meeting of this Association in Denver, in 1911, the following resolution was offered by Dr. T. J. W. Burgess:

"Resolved, That it is in the best interests of the American Medico-Psychological Association that it should sever its connection with the Congress of American Physicians and Surgeons, and that the Secretary be instructed to give notice to the Congress that it has decided to that effect."

The following Committee: C. R. Woodson, Edward N. Brush and William L. Russell, were appointed to make report on said resolution.

I hereby recommend that the resolution be adopted, and submit this as a minority report.

C. R. WOODSON, *Chairman.*

DR. WOODSON.—*Mr. President, and Gentlemen of the Association.*—In substantiation of this resolution I desire to say that I think the time has come when the American Medico-Psychological Association can stand without bolstering. I do not believe it is necessary to have props from the Congress of American Physicians and Surgeons, to see that we are keeping

apace with the times. I do not believe it is necessary for us to say that we are not competent to stand alone; that we are not progressing and that we are not making the advances that our brothers of the sister branches are making, when it has been so plainly shown by our president that 65% of the people who go to the state hospitals for the insane are idiotic, imbecile, defective or due to heredity. If the surgeons had to contend with 65% of incurable cases they perhaps would have some occasion to reflect these views if they were disposed to do so. The fact that we have the largest representation in the Congress of American Physicians and Surgeons, and pay, if I mistake not, almost one-third of the expenses of the Congress and derive no benefit therefrom, I do not believe that is fair. Again, we are an organization composed of members representing every state in the American union, and I understand every province in Canada. Such being the case, at least many of us are not disposed to want to assemble at Washington, D. C., every third year. This is a feature that has given its members much pleasure and comfort—visiting in every part of the country; in New York, Boston, Detroit, San Francisco and other places, and there is no reason why we should go back to Washington every third year. And again, if we sever our connection with this most worthy organization, or if by arrangement or pre-arrangement we can meet here in this city with the American Medical Association, we certainly ought to command as much respect for being members of the American Medical Association and participating in that representative body, as to continue our membership in the Congress of American Physicians and Surgeons. If by a pre-arrangement this society will so arrange, we can meet the week after it meets and thus save one-third of the railroad transportation, which, for some of us, is no small matter. If by the same arrangement we meet in the same city we can get a reduction in hotel rates, and the benefits to be derived would be far better at the hands of the A. M. A. than by affiliation with the Congress of American Physicians and Surgeons. I think the time has come for this organization to assert its individuality. We can all look back and see that it was not long ago when surgeons operated without antiseptics, and we are no more blamable for not curing incurable insanity than the surgeon is for not curing a case of sarcoma in advanced states.

THE PRESIDENT.—Please allow me to say that I will limit the discussions on this resolution to five minutes unless the Association advises otherwise.

This question has become involved and, perhaps, it would be well to attempt to straighten it out. A year ago, in Denver, Dr. Burgess offered this resolution which has just been read. Subsequent to the offering of this resolution a committee of three was appointed to go into the matter and report at this meeting. The committee has gone over the matter and submits a majority and a minority report, a part of the latter being the Burgess resolution. Now the Chair rules that the Burgess resolution must be presented and acted upon independently of the committee report, and it also rules, as the Burgess resolution antedates this committee, that the Burgess resolution shall be acted upon first, and then the two reports

of the committee will be taken up and acted upon. Is that satisfactory to the convention?

It was moved and duly seconded that the resolution be adopted.

THE PRESIDENT.—The motion has been made and seconded that the Burgess resolution be adopted, now this resolution is before the Association for discussion.

DR. BURGESS.—Most of you know that I was opposed to our joining the Congress, and I have objected to it ever since as detrimental to the best interests of our Association. I have attended every meeting since our affiliation with the Congress, and I have failed on every occasion to see that we have gained one single atom of benefit thereby. I do not know what Dr. Brush will advance on this point, but I certainly am one with Dr. Woodson in thinking we are big enough to stand alone.

Now as to the drawbacks resulting from the union. In the first place, as long as we are connected with the Congress we are tied down to meet in Washington every third year. To this I strongly object. Were the Congress such that we met once in ten years, I would say all right, but to meet at Washington every third year is too much of a good thing, even as regards so beautiful a city, as is your capital. In the second place, meeting with the Congress, my experience has been that we lose our identity. As I have said I have attended every meeting since the affiliation and I fail to remember any members of the many other sections who have been present at our meetings, while many of our members leave us to hear papers read by personal friends in other sections. In other words we show an interest in branches of medicine other than our own, while they show little or none in ours. Next as regards some of the financial disadvantages we suffer under owing to this union. Every Congress I have attended I have given up \$5, but have never yet been favored with a volume of its Transactions. I do not object to that at all. I have paid my mite voluntarily and willingly for the credit of our own Association. In addition, however, we had, according to the report submitted by our Secretary, to pay \$423 out of a total of about \$1400, the expense of the last Congress, as our proportion. Is this fair when there are about twelve or fourteen sections which go to make up the Congress? The opponents to my resolution say we will come to some arrangement whereby we will not be taxed so highly. It may be so, but even in that case I think we are better off apart.

DR. CAREY.—The statement has been made that we gain considerably from this affiliation with the Congress. If my memory serves me right, I have been a member for seven years, and I have yet to receive a single line of any report from the Congress. I sent in my name and my money, but I have never received any reports, whatever, of their transactions.

DR. BRUSH.—I have a letter here from the Secretary, in which he says that the volume of Transactions is sent to every member of the Congress, Associate and Active.

DR. BURR.—The step contemplated by the resolution is, to my mind, distinctly retrogressive, and I am heartily opposed to taking it. A few years ago this Association moved heaven and earth to get into the Congress, and now it is moving heaven and a portion of the cosmos to separate itself from this affiliation. I yield to no man in loyalty to the American Medical Association. I am as fond of it as is Dr. Woodson, but there is other medical company in which this Association may move with profit. The membership of the Congress represents the very best in American medicine. Relations with the American Medical Association are to our advantage, and affiliation with the Congress is distinctly an uplift and benefit to this Association. There has apparently been in some quarters in the past, disposition to relegate this body to non-medical company. If such a disposition is still in existence, Heaven forbid that we should be a party to reading ourselves out of good medical company. I am thoroughly opposed to the adoption of the resolution.

DR. C. G. HILL.—I do not see that the resolution before the house will interfere with any of us being members of the American Medical Association. I suppose we can retain our membership there. I do not see any particular advantage in this affiliation with the Congress. I am sure that the fact of our having joined and now wishing to sever our connection with that body is a perfectly natural course. We joined them for the purpose of gaining advantages, but we seem to derive no advantage, whatever, from this association. We are bound down to certain restrictions and when we meet together in Washington a third of our meeting is practically spoiled. We lose our identity, as it were, and the advantages to be derived from our own meeting. Go to Washington if you choose, and to other places; the matter of expense I do not say amounts to a great deal, but there is nothing to be gained by association with this body, and to my mind, we have nothing to congratulate ourselves upon in this affiliation. I am, therefore, opposed to it and I hope the resolution will go through.

DR. HENRY M. HURD.—In considering this question we should not depart from the position which we took when joining the Congress of American Physicians and Surgeons. We had no thought that the Congress would bolster us up; we simply desired to affiliate ourselves with a prominent body of medical men of the United States and Canada. We could not merge our Association with the American Medical Association; that policy had been considered by our Association many years ago. Before many of our present members joined this Association an effort had been made by the American Medical Association to induce our Association to give up its identity and become a branch of that Association. The matter was discussed and an effort was made for several years to secure such an affiliation, but the members of our Association wisely refused to give up their identity and become members of a section of the American Medical Association. What has happened? We have always been under the ban of the American Medical Association; it has always insisted that as

administrators, we meet together; that we are simply keeping institutions for the insane; that we are bookkeepers and purchasing agents, stewards and farmers, but not physicians. As an Association we later welcomed the opportunity to affiliate with, not to join or to lose our identity, twelve of the most progressive national medical societies in the country. We joined the Congress as equals, not as satellites, and without in any way losing our identity. By joining the Congress we did much to make our Association better known to the different medical associations of the country. I remember an extremely distinguished medical man who, after a meeting in Washington, said, "I am surprised and delighted to see so active and progressive a class of men as are connected with the American Medico-Psychological Association. We have great difficulty in keeping our men together two days, but after the Congress had adjourned and every one had departed, I found the members of the American Medico-Psychological Association conscientiously completing their program."

We cannot afford to shut ourselves away from other kindred societies. Members of other societies do come to our meetings, and members of our society go to meetings of other societies and all of us have the opportunity of attending the general sessions of the Congress. We belong to the Congress precisely as the other societies, and have had papers presented at the general sessions by our own members which have attracted much attention. I believe that it will be a great mistake to sever this connection. Of course the consideration of the cost of membership is a small matter. No one feels that the amount of our assessment to publish the triennial volume of Transactions is of any great importance. How many of us are the poorer for it?

DR. BRUSH.—I am not an orator like our friend Dr. Woodson, or Dr. Burgess, but I have paid some attention to this matter. The American Society of Physiologists did sever its connection because it was a special society, not interested in other departments of medicine, but alone interested in physiology. It is a small society and if it gained nothing, it contributed little to the Congress. Personally, I shall not lose anything if the Association severs its connection with the Congress. I have been a member of the Congress from its beginning by reason of membership of another organization. I have received all the volumes of the Transactions, and any member who did not receive the last volume can get it by writing to the Secretary. No one has intimated, or has intended to intimate, that we are not progressive; what has been intimated is, that those who do not know what we do, who do not know of the medical work done in the hospitals, have intimated that we are not progressive. I am old enough to remember and to have lived and taken a small part in, and therefore, know something of the changes which have gone over the medical side of hospitals for the insane. I say it, and I say it without shame, there was a time when the criticism of institutions for the insane was somewhat harsh, and to some extent deserved; that criticism is not made to-day by those who know of the work done in the hospitals for the insane.

Dr. Hurd has referred to the action of the American Medical Association. Whether it was pique because we did not dissolve ourselves and merge ourselves in the section on psychology, I do not know, but probably every member of this body is also a member of the American Medical Association. Let him look over the officers of that Association and see how often a member of this Association has been honored by an office as Chairman, Secretary or Vice-Chairman, or anything else, with the section of Mental and Nervous Diseases of the American Medical Association. They do not know anything about us. The latest volume of their Medical Directory, which is supposed to contain a list of all the special and medical societies of the country, is scandalously silent as far as the American Medico-Psychological Association is concerned—it is not known to the Association. If we come here to this meeting this week in advance of the American Medical Association and remain so as to take part in its meetings, it involves our being away from our work at least two weeks, and then if we have a vacation later we must face the fact that we have already been away two weeks, if not longer. As far as the meeting in Washington is concerned, every three years, it attracts a larger number of members than any meeting anywhere else does; it always has and I think always will. Personally, I shall stand by whatever action the Association takes. I am loyal to the organization; I have no personal feeling whatever, but I hope we will go slowly; that we do not now sever our connection, but wait until next year and see what is done. I cannot think we have been paying a quarter of the expenses of the Association. I hope that the resolution will not be adopted.

DR. BLUMER.—I arrived in the hall rather late and only in time to see Dr. Woodson from a distance in action, for he had finished his remarks before I reached this part of the room, but I was not too late to hear what Dr. Burgess had to say. The argument of the member from Montreal is probably the argument of Dr. Woodson, and when I heard what he had to say I recalled a remark which Professor Jowett, of Oxford, once made on a somewhat similar occasion. He said: "Gentlemen, all my illusions are gone; there is not one left, not even the Archbishop of Canterbury." I confess I cannot see how in the world we can lose our identity by being affiliated with the Congress any more than the various other societies lose their identity by being connected with that body. It is very interesting to me, as a psychological phenomenon, that when a distinguished candidate for the Presidency has been saying "I won't" when he meant "I will," and "I will," when he meant "I won't," we exhibit the same indecision and shiftiness, finding all sorts of excuses for severing our connection with a body which we were so eager to join a few years ago. If there were no other reason, we have a sufficient one for retaining the connection in the fact that the Congress is a clearing-house of medical thought, of which it were well for us to remain members for our own good. I hope, therefore, that we shall continue to have the privilege of associating ourselves with our sister specialists, and that we shall always lay the accent upon the fact that we are above all things physicians, and not mere administrative officers.

DR. WOODSON.—I have no desire to impress upon this body the feeling that I was in favor of doing away with the American Congress and taking up the American Medical Association. I am a member of the A. M. A. I think I can remain a member of the Congress if I so desire, but I do believe that every third year we completely lose our identity in going to Washington, and I am afraid if we keep it up we will follow in the steps of our time honored friends referred to by Dr. Hurd; that we will not settle down to work closely to the end of the session, but we will get in the habit of running about and having empty halls. A busy man wants to get the best he can and there is no reason why we cannot hear any of these men if we come to the meeting of the A. M. A. If we have the two meetings at the same place one week ahead or one week later, we get the benefit of very greatly reduced rates.

THE PRESIDENT.—The motion before the house is that this Association sever its connection with the Congress of American Physicians and Surgeons. Are you ready for the question?

A rising vote was taken on the motion, the Secretary counting.

THE PRESIDENT.—The Secretary informs me that the vote on the motion is forty in favor and thirty-five opposed. The Burgess resolution is, therefore, pronounced as carried, and the association, heretofore existing, is dissolved.

DR. BRUSH.—I move that the Secretary be instructed to inform the Congress of American Physicians and Surgeons to that effect.

Carried.

THE PRESIDENT.—The report of the Council is the next order of business.

REPORT OF COUNCIL, MAY 28, 1912.

The Council recommends that the following named physicians be elected to Associate membership: William M. Dobson, M. D., Boston, Mass.; Dora W. Faxon, M. D., Taunton, Mass.; Mary E. Gill, M. D., Dorchester Centre, Mass.; Ermy C. Noble, M. D., Dorchester Centre, Mass.; Cyril G. Richards, M. D., Dorchester Centre, Mass.; Joseph H. Toomey, M. D., Dorchester Centre, Mass.; Stephen E. Vosburgh, M. D., Boston, Mass.; John I. Wiseman, M. D., Dorchester Centre, Mass.

The Council has received the following applications for Active membership. In accordance with the constitution, final consideration of these will be deferred until next year: S. Grover Burnett, M. D., Kansas City, Mo.; R. H. Parsons, M. D., Mt. Holly, N. J.; Harry O. Spalding, M. D., Westborough, Mass.

On motion, duly seconded, the report of the Council was accepted and adopted.

THE PRESIDENT.—The next in order is the election and transfer of members as proposed yesterday. The Secretary will read the names.

(This list is given on pages 203-204.)

DR. WOODSON.—I move that the Secretary be instructed to cast the ballot of the Association for the election and transfer of members as recommended by the Council yesterday.

Motion was duly seconded and carried.

THE PRESIDENT.—The Secretary has cast the ballot of the Association and the members are duly elected and transferred as recommended.

DR. BRUSH.—Under unfinished business it is proper for the committee to report, that was appointed at the meeting at Washington, in connection with a resolution called forth by the address of Dr. Drewry. The committee was appointed to report on legislation, new laws, system of care and supervision of the insane. The committee made a tentative report of progress, but owing to the fact that this work would require a large amount of correspondence, we asked in this preliminary report whether the Association desired to incur the necessary expense, and if so, would it make the necessary appropriation. This report was forwarded to Denver, but was lost and has never been acted upon and never been followed up. The committee is still in existence and has never been discharged. I would, therefore, ask that the committee be instructed or discharged.

THE PRESIDENT.—I would like to ask what would be the probable expense of the committee.

DR. BRUSH.—It is hard to say. The idea was to find out what new laws have been enacted, what new methods are in use. That will necessitate a great deal of correspondence. I, personally, do not see that anything can be accomplished by it. Each state in the union and each province in Canada acts independently. It would seem to me well that this committee be discharged, and I move that this committee be discharged.

This motion unanimously prevailed.

THE PRESIDENT.—The present committee on this question is duly discharged.

Any other unfinished business?

DR. EDWARD N. BRUSH.—I wish to say that during the discussion yesterday in regard to the restriction of the admission of undesirable immigrants to this country, it was suggested by the President that some action be taken by the Association, and at his request I have prepared the following resolution, which I beg to offer:

Resolved, That a committee of five members of this Association be appointed by the President to consider what action should be taken by this Association to secure more effective administrative and legislative measures

for excluding insane and mentally defective immigrants, and for the humane deportation of aliens who become a public charge in our institutions for the insane; such committee to report at this meeting.

DR. HURD.—I move the resolution be accepted and adopted.

Dr. Hurd's motion was duly seconded and carried.

DR. FRANK WOODBURY.—I would ask that the President make a ruling in regard to this resolution so that the words "institutions for the insane" shall include public institutions for feeble-minded.

THE PRESIDENT.—The Chair so rules.

THE PRESIDENT.—We are ready for the report of the Nominating Committee, Dr. Pilgrim.

DR. PILGRIM.—Your Nominating Committee reports as follows: For President, James T. Searcy, M. D., Tuscaloosa, Ala.; for Vice-President, Carlos F. Macdonald, M. D., New York, N. Y.; for Secretary and Treasurer, Charles G. Wagner, M. D., Binghamton, N. Y.; for Councilors, Henry M. Hurd, M. D., Baltimore, Md.; James V. May, M. D., Albany, N. Y.; M. L. Perry, M. D., Parsons, Kans.; T. J. W. Burgess, M. D., Montreal, Canada; for Auditor, Maurice C. Ashley, M. D., Middletown, N. Y.

DR. BURR.—I move the report be accepted, adopted, and the Secretary be instructed to cast the ballot of the Association for the election of the officers named by the Nominating Committee.

DR. BLUMER.—Seconded.

Motion was unanimously carried.

THE PRESIDENT.—The Secretary announces that the ballot has been cast. These gentlemen are elected as officers of the Association for the ensuing year.

The next in order is the report of the Auditors, Dr. Smith.

DR. SMITH.—I beg to report that I have examined the books and vouchers of the Secretary and Treasurer, and compared his records with the report submitted to the Association, and found everything correct. The same is true of the report submitted by the Editors of the *AMERICAN JOURNAL OF INSANITY*.

DR. CAREY.—I move the report of the Auditors be accepted and adopted.

Which motion was duly seconded and carried.

THE PRESIDENT.—As it is impossible to adjust the lights satisfactorily for Dr. Cotton's paper, which is illustrated by lantern slides, this paper will be postponed until the evening session.

The following papers were read:

"The Jury Commitment Law of Illinois, 1865-1893 (achievement of Mrs. Packard), and Later Developments in Lunacy Commitment," by Richard Dewey, M. D., Wauwatosa, Wis. Discussed by Dr. Henry M. Hurd, Dr. Gorst, Dr. Hill, Dr. Moody, Dr. Woodson, Dr. Evans, Dr. MacDonald, and Dr. Russell.

"Three Months Without and Three Months With a Social Service Worker at the Mental Clinic of the Boston Dispensary," by L. Vernon Briggs, M. D., Boston, Mass. Discussed by Dr. Brush, Dr. Southard, Dr. Houston, Dr. Cotton, and Dr. Briggs.

THE PRESIDENT.—If the value of a paper depends upon the discussion elicited, Dr. Dewey's paper is an exceedingly valuable one.

The Chair appoints the following Committee on Immigration, as provided for in Dr. Brush's resolution: Dr. Edward N. Brush, of Maryland; Dr. James V. May, of New York; Dr. C. B. Burr, of Michigan; Dr. Owen Copp, of Pennsylvania; Dr. T. J. W. Burgess, of Canada.

This committee will officer itself.

The Industrial Exhibit is now open for inspection in the south lobby, and you will be well paid by visiting it.

THE PRESIDENT.—As the Committee on Resolutions, I will name the following: Dr. G. Alder Blumer, Providence, R. I.; Dr. B. M. Caples, Waukesha, Wis.; Dr. Charles G. Hill, Baltimore, Md.

THE PRESIDENT.—Dr. Hoch has asked to have his paper deferred until tomorrow.

Adjournment.

AFTERNOON SESSION.

THE PRESIDENT.—The Association will please come to order.

The following papers were read:

"Problems Presented by a Series of One Thousand Autopsies in Cases of Mental Disease," by E. E. Southard, M. D., Boston, Mass. Discussed by Dr. Cotton and Dr. Southard.

"Some Psychological Observations in the Study of the Insane," by Max E. Witte, M. D., Clarinda, Ia. Discussed by Dr. Woodbury, Dr. Burr, and Dr. Witte.

"Water," by Charles G. Hill, M. D., Baltimore, Md. Discussed by Dr. Searcy and Dr. Moody.

THE PRESIDENT.—The committee appointed today on immigration, desires to meet here immediately after the session closes, and they request that all interested in, or having any suggestions bearing on this subject, will meet with them.

The Council will meet immediately at the close of this session.

Adjournment.

EVENING SESSION.

The President, Dr. Work, introduced Hon. Herbert P. Bissell, of Buffalo, N. Y., State Hospital Commissioner for the State of New York, as the speaker of the evening. Mr. Bissell then delivered his address, "A Layman's View of the Care and Treatment of the Insane in the State Hospitals of the State of New York," which was greeted with applause. At the conclusion Dr. Work thanked Mr. Bissell, on behalf of the Association, for his address.

Dr. Henry A. Cotton, of Trenton, N. J., read a paper entitled: "The Fatty Degeneration of the Nervous Elements of the Cortex in the Various Mental diseases." (Illustrated by lantern slides.)

THE PRESIDENT.—The meeting is adjourned.

THURSDAY, MAY 30, 1912, 10 A. M.

THE PRESIDENT.—The Association will please come to order. We will have the report of the Council.

REPORT OF COUNCIL, MAY 29, 1912.

The Council recommends that the following named physicians be elected to Associate membership: Jessie Peterson, M. D., Norristown, Pa.; Marion O'Harrow, M. D., Philadelphia, Pa.; Albert C. Buckley, M. D., Philadelphia, Pa.

The Council has received the following applications for Active membership. In accordance with the constitution, final consideration of these will be deferred until next year: T. B. Bass, M. D., Abilene, Tex.; H. Walton Wood, M. D., Brookline, Mass.; Arthur P. Hasking, M. D., Jersey City, N. J.; H. V. A. Smith, M. D., Jersey City, N. J.

Respectfully submitted,

CHARLES G. WAGNER, *Secretary.*

On motion the report of the Council was accepted and adopted.

THE PRESIDENT.—The next order of business is the election of the candidates proposed by the Council yesterday. The Secretary will read the names.

The Secretary read the following: William M. Dobson, M. D., Boston, Mass.; Dora W. Faxon, M. D., Taunton, Mass.; Mary E. Gill, M. D., Dorchester Centre, Mass.; Ermy C. Noble, M. D., Dorchester Centre, Mass.; Cyril G. Richards, M. D., Dorchester Centre, Mass.; Joseph H. Toomey, M. D., Dorchester Centre, Mass.; Stephen E. Vosburgh, M. D., Boston, Mass.; John I. Wiseman, M. D., Dorchester Centre, Mass.

On motion, duly seconded, the Secretary was directed to cast the ballot of the Association electing these candidates as members of the Association.

THE PRESIDENT.—The Secretary announces that the ballot has been cast, and these physicians are elected members of the Association.

THE PRESIDENT.—We will now listen to the report of the Committee on Immigration.

DR. BRUSH.—When we recall the paper of Dr. May and the discussion which it brought forth, I think it is evident that there has been no more important matter brought before the Association since its organization. The committee has considered the subject with as much care as time would permit. We have had the benefit of advice from several of our members, from Dr. Salmon, Dr. Campbell, Mr. Elwood, Mr. Goodwin Brown and others, and beg leave to present the following:

WHEREAS, The American Medico-Psychological Association, an organization representing all parts of the United States and Canada, whose members are engaged in the care and treatment of the insane and in the study of all questions involved in the care and treatment of insanity and mental defect, has for one of its chief purposes the conservation of the mental health of the whole country and the prevention of insanity and other forms of mental defect and disturbance; and

WHEREAS, The entry of a large number of insane and mentally defective immigrants is a menace to the mental health of the country in this and succeeding generations, and tends to produce lower standards of care by greatly overtaxing the resources of our public institutions, thus adding to the difficulties of a problem already a serious one; and

WHEREAS, The Federal statutes, based upon the right premise that countries as well as individuals should not evade their own responsibilities, provide for the exclusion of insane and mentally defective immigrants; and

WHEREAS, It is more humane as well as more effective to reject insane and mentally defective immigrants at the time of their arrival, than to deport them after they have gained a residence in this country and brought their families here; and

WHEREAS, It has been shown that the facilities for the mental examination of arriving immigrants are inadequate, and that the safeguards for the humane care of those deported, while in transit, are insufficient; therefore, be it

Resolved, By the American Medico-Psychological Association that Congress be urged to provide for the mental examination of arriving immigrants by physicians in the United States Public Health and Marine Hospital Service, trained in the diagnosis of insanity and mental defect, and to provide for adequate facilities for the detention and examination of immigrants in whom insanity or mental defect is suspected and for the safe and humane return to their homes of those whom it is necessary to exclude, and further

Resolved, That aliens who have been permitted entrance to the country who become insane or show any mental defect within at least three years after landing should be deported unless it shall be shown conclusively that such insanity or mental defect has resulted from causes arising since the landing of said aliens, and that the question of such insanity or mental defect, as well as of insanity or mental defect in aliens seeking to land, should be authoritatively decided by physicians of experience and training in psychiatry, who, in sufficient number, should be employed at all ports or places of entry for immigrants, and that all questions of fact or opinion involved should be governed and decided solely by the teachings of modern psychiatry, especially as regards the cause or causes of insanity or mental defect in any alien whom it is desired to deport, and be it further

Resolved, That the barbarous custom of deporting insane or mentally defective aliens without accompanying nurses or qualified attendants, of his or her own sex and of experience in caring for such cases, is a reflection upon the intelligence and humanity of the country and should at once be discontinued.

Resolved, Also, that the fine imposed upon transportation lines for bringing mentally defective immigrants into the country is inadequate and should be at least twice the amount now imposed, and that the same fine should be imposed for bringing insane immigrants into the country, and

Resolved, That these resolutions be duly authenticated by the President and Secretary of the Association, and with its seal and forwarded to the proper committees of the Senate and House of Representatives of the United States, and to the Secretary of Commerce and Labor and the Surgeon-General of the United States Public Health and Marine Hospital Service.

EDWARD N. BRUSH, Maryland, C. B. BURR, Michigan,
OWEN COPP, Pennsylvania, JAMES V. MAY, New York,
T. J. W. BURGESS, Canada.

DR. BRUSH.—I feel myself wholly inadequate to discuss this question, but there are gentlemen in this room who have had experience in this matter, and I hope the subject will be thrown open for discussion to every one present. The committee has endeavored to put emphasis upon the medical aspect of this question, for it is strictly a medical one in its inception, that is, when the question of the mental status of the individual in question is considered. I understand that certain cases have been admitted, notwithstanding the opinion of the medical men at the port of

entry, by a strictly legal opinion, or rather the opinion of the law department of the Government. No ruling based on anything which excludes medical opinion, by competent men, should be made.

THE PRESIDENT.—You have heard the report of this committee, and the Chair will be very glad to entertain a motion to receive, accept and adopt this report as the sense of the Association.

DR. CAREY.—I move that the report of the Committee on Immigration be received, accepted and adopted, as the sense of this Association.

Seconded by Dr. Woodson.

THE PRESIDENT.—Motion has been made and seconded that the report of the Committee on Immigration be received, accepted and adopted. The subject is now open for discussion.

DR. HERBERT B. HOWARD.—When this committee was appointed yesterday it seemed to me that it had a pretty large subject to cover and get a report in today. It happens that I have been so situated for the last twenty-five years that I have come in fairly close contact with the deporting of the insane. I wish to state that after listening to this report, it shows that somebody has studied that subject carefully; that somebody helped to get up that report that had considered it before yesterday. I think it is well covered. I have taken pains when I have been crossing the Atlantic, to go down and see how those that we send across the Atlantic were being cared for, and I must admit that I have been rather ashamed to see how we return our insane to their homes. I have felt at times that we ought to be willing to pay for the keeping of them here unless we were willing to pay well in order to get them back in better shape. This is a subject for discussion. Within a few years we have got to take greater pains to see that these attendants who accompany the patients get them to their homes. There are countries where they will not allow them to enter. In Russia the law prohibits them to cross the borders. We send them back to their homes, but no one ever knows what becomes of them, as they have to be smuggled across the Russian border. Now, it so happens that the laws, or rather the customs, have been marvelously changed within the last decade, so that we are quite humane in interchanging between some of our states and getting patients to their own homes, and I think that this resolution may be one great step toward handling this subject, which is a difficult one, but there are many difficulties that we do not get at in this resolution. I think this is one great step not only toward educating the public, but toward educating our own members. Lots of them do not really understand the difficulties and what the patients undergo when they are sent across the Atlantic. I hope these resolutions will pass.

DR. WOODSON.—I think this motion ought to be amended so as to authorize Dr. Brush and his committee, or that part of it which is in close proximity to Washington, to present this report to committees on immigration or deportation, of both Houses of Congress.

DR. CAREY.—It is my understanding that the adoption of the resolution carried that with it.

THE PRESIDENT.—It is the opinion of the Chair that unlimited power is given to that committee; that the whole matter can safely be trusted to their judgment, and if they do not take up these matters that are so important, we will see that they are discharged. I do not think it is wise to make too many suggestions or place any restrictions. The Chair is pleased to have its judgment complimented in the selection of the committee, by the first speaker.

Any further discussion?

DR. GEORGE B. CAMPBELL.—In New York some months ago we met with a very severe set-back in the form of a decision of the Solicitor and concurred in by Attorney-General Wickersham, which involved the case of a feeble-minded girl 17 years of age, who came to this country less than a year ago. She was subject to attacks of excitement. The case was certified to by a member of our Bureau on the grounds that the constitutional tendency was mental deficiency, and that it existed prior to her landing in this country. The Secretary of Commerce and Labor held that this statement was not sufficient evidence to show that the insanity existed prior to her landing here.

Briefly it might be well to tell you of the methods that we employ in certifying to our cases. The Bureau of Deportation usually sees a case at the reception hospital, very frequently at their homes. A careful history is taken of the case, and then after a commitment to one of our state institutions, a copy of the hospital history is also submitted to us, and with that we compile a medical certificate, provided that we are positive of our ground of insanity, or that the cause of insanity existed prior to landing. This certificate is reviewed by a medical officer at Ellis Island, and although very frequently our certificates are confirmed by the examiner at Ellis Island, often we have had them rejected at Washington.

THE PRESIDENT.—Commissioner Bissell, the orator of last night, is in the room and I am pleased to extend the privileges of the floor to him if he will speak to us for a few moments and give us the pleasure of hearing from him again. (Applause.)

HON. HERBERT P. BISSELL.—*Mr. President and Gentlemen:* I am very glad, indeed, to add just a word to this discussion because the State Commission in Lunacy of the State of New York, has taken the deepest interest in this subject during the past year. It has employed an able attorney, who was formerly a member of the Commission, Hon. Goodwin Brown, to give his attention to the subject. Mr. Brown has been in attendance before committees of Congress. We have given a great deal of time, as shown by the good paper read by Dr. May, to the collection of the facts by the Bureau of Statistics in our department, and the preparation of arguments that we think will be effective in securing the exclusion of

the alien insane, and the deportation of them by the United States Government at their expense. What we want to do is to save all the other states as well as the State of New York, from this terrible burden of expense. The burden upon the State of New York amounts to twenty-five millions of dollars. Only a few months ago we decided it would be wise to start a campaign and prepare a communication to the Governor of the State of New York. This was prepared by the Commission and sent to the Governor, requesting that he appoint a commissioner who would make investigation in our state hospitals. The Governor has appointed such a commissioner, who will go about and see the superintendents of the state hospitals and the Commissioners in Lunacy in several states, and will make a general report to our Governor and to the next Legislature. It is evident that there is nothing any of us can do for the purpose of economy that is more important than to carry on this excellent work, and we are endeavoring to help it in every way possible through the Bureau of Deportation, of which Dr. Campbell, who has just spoken to you, is the Chief Medical Examiner. Commissioner Williams is of great assistance to our department as well as to the National Government, in the exclusion of the physically and mentally defective aliens who have been loaded on this unfortunate country in the past, and we are going to stand behind him. We have had several conferences with the Secretary of Commerce and Labor on this subject, and we find that there sometimes is politics connected with it. There are lots of organizations that want to let in all of these unfortunate people. We feel very sorry for them, but we do not propose to have the State of New York take care of them any longer. If the National Government desires to admit them, we will tell them that they must build their own hospitals and take care of them without help from the State of New York, and if we do take care of them we will insist that we are paid for the expense of caring for them. I am delighted that this subject has come up in this splendid way, and I hope these resolutions will be adopted unanimously. I thank you.

DR. E. STANLEY ABBOT.—It may interest the Association to know that there is a reflex to this problem. One of the recent Italian Journals contained a report of a meeting held in Naples, at which measures were taken to provide for the Italian insane that were returned to Italy from the United States and dumped in Naples, crowding the local hospitals, instead of being sent to their respective homes. I could not help but feel ashamed of our country, that the methods we have, heretofore, used for returning these patients were such as to call for such action on the part of the Italian Psychiatric Society.

DR. SALMON.—There is one matter covered by the resolutions about which I would like to say a few words; that is the methods employed in deportation. Until 1907, all insane immigrants were deported, without regard to their condition, by the first returning vessel available and aliens for whom warrants had been issued by the Department of Commerce and

Labor were deported to the port at which they had embarked; their return to their own homes depending upon the humanity or good-nature of the transportation companies.

It was apparent that, under these conditions, many insane aliens were not reaching their homes and complaints received led the New York State Charities' Aid Association to investigate the matter. This investigation showed that some such aliens were never heard from by their friends and relatives after they had left New York and that others had suffered from ill-treatment or neglect during the voyage. It became necessary to take some action and so the immigration law was amended at the instance of the State Charities' Aid Association in 1907. The amendment provided that when the chief medical officer of a hospital or a medical officer of the Public Health and Marine-Hospital Service certified that an insane alien was not in condition to attempt the journey alone, such insane alien should be accompanied by an attendant. This was done for about six months, but then the steamship companies decided that the care provided was costing too much and they protested against the law, wholly upon the grounds that it was "too expensive."

A conference was called in Washington and the steamship companies, having received ample notice, were represented. Mr. Homer Folks, representing the State Charities' Aid Association, was given too short notice to enable him to be present.

At that conference it was decided that the intent of the law would be carried out by having a paper in four parts accompany deported insane persons. The first part of this paper was to be signed by the Commissioner of Immigration, stating the alien's condition. The second part was to be an acknowledgment on the part of the transportation company of the receipt of the alien. The third part was to be a statement by the master of the vessel regarding the care given on the voyage and a receipt by the European forwarding agent. The fourth part was to be signed by the relatives of the alien or the proper authorities acknowledging the receipt of the alien in his home.

After this change in the method of deportation it soon became apparent that old conditions were returning, complaints were received again and it was ascertained that the authorities at Ellis Island did not know whether insane aliens reached home in safety or not unless specific complaints led to investigation.

It is now proposed to change the section of the immigration law so that the Secretary of Commerce and Labor *shall be obliged* to provide competent attendants when needed and that the expense shall be borne by this Government. This looks very much like surrendering to the steamship companies, but it is not. The Government has tried to penalize the steamship companies and the steamship companies have tried to evade their duties under the law and, in the whole controversy, the welfare of the immigrant has not been considered.

I think that very few people who travel first-class have such an opportunity as Dr. Howard had of seeing the actual conditions under which these

insane aliens are deported. It may not be known that the Navigation Act of 1883 provides for the care of all classes of sick passengers in proper hospital accommodations. Whether an insane alien is or is not a sick person is decided by the ship's officials. I have seen the decision made by the Master-at-Arms that such an alien was a disorderly person and I have seen them dealt with accordingly. Patients are taken directly from our hospitals and cared for on some vessels without reference to their illness at all. One ship's surgeon informed me that it was the rule of his company to put all deported insane aliens in straight jackets during the voyage. I believe that your appeal to Congress will effectively dispose of this particular abuse. The presence of a person of the same sex in attendance will ensure the proper care of insane aliens being deported and also their return to their own homes.

The objection has been made that certain foreign governments would not permit such attendants to pass their borders. It is a fact that even insane aliens who are being deported to Russia have to be smuggled into Russia from Germany by "official smugglers" of the latter country. This proceeding usually takes place at night and I have been told by those who have personal knowledge of the facts that it is sometimes necessary to gag insane aliens being smuggled across the line to prevent them from making an outcry and being detected. The abuses which are possible under such conditions can be readily seen. With trained attendants in the service of the United States, such occurrences would be impossible.

Passage of the sick and wounded between the lines is permitted even in times of actual war between civilized nations and if there is a nation so barbarous as to refuse to permit a trained nurse employed by the United States to accompany an insane subject of that foreign Government to his home, I think that it would be better to pass our law and ventilate that nation's inhumanity before the world than to continue our present reckless disregard for the safety of helpless insane aliens, simply for fear that a change in our methods might not be acceptable to some foreign Government.

DR. BRUSH.—The Chair and others have spoken very kindly of this report, and the chairman of the committee wishes to be absolved from all credit in the matter. The first part is a copy of a resolution on the same subject by the National Committee for Mental Hygiene, and we have had, as I said before, the assistance of Dr. Salmon, Dr. Campbell, Mr. Goodwin Brown and others. We have tried to place this matter on the basis upon which it should stand. The question is a purely medical one and, therefore, should be based on medical opinions. The Public Health and Marine Hospital Service is rapidly equipping itself with trained alienists who are making these examinations and giving these opinions upon the same ground that we give opinions in our general practice or in our hospital practice, and these opinions are based upon experience, not the experience of some one who knows nothing about the subject whatever.

THE PRESIDENT.—It is the opinion of the Chair that Dr. Brush has said nothing to absolve himself. Are you ready for the question?

Motion carried.

DR. BURGESS.—I would make a request that a copy of this report be sent to the Canadian Government as well.

THE PRESIDENT.—It has been moved that a copy of this report be sent to the Canadian Government. If there are no objections it is so ordered.

THE PRESIDENT.—Report of the Committee on the Status of Medical and Scientific Work in the Hospitals of the Several States and Provinces, of which Dr. Meyer is chairman.

DR. HOCH.—I saw Dr. Meyer in Boston and he told me that there had been nothing done and, therefore, nothing to report.

THE PRESIDENT.—We will listen to the report of Dr. Henry M. Hurd, Chairman of the Committee on Institutional Care of the Insane.

Dr. Hurd read the report as follows:

REPORT OF COMMITTEE ON THE INSTITUTIONAL CARE OF THE INSANE.

Gentlemen: As chairman of the committee, I desire to report that although no formal organization of the committee has taken place, much correspondence has been conducted between the members of the committee, and a division of the work has been planned for the different members of the committee.

The New England States have been assigned to Dr. G. Alder Blumer, of Providence, R. I.; the States of New York, Pennsylvania and New Jersey to Dr. Charles W. Pilgrim, of Poughkeepsie, N. Y.; Canada and the Maritime Provinces have been assigned to Dr. Burgess, of Montreal; Wisconsin and Illinois, to Dr. Dewey, of Wauwatosa, Wis.; and the State of Virginia and the Southern States to Dr. Drewry, of Petersburg, Va. The remaining states have been undertaken by the chairman of the committee.

Perhaps it should be added that the chairman of the committee has felt at liberty to correspond more or less extensively with members of the Association in all the states and has written repeatedly to ask for material, outlines of histories and the like. It is evident from the amount of material in the possession of the chairman that the publication of the work will require more than one volume. It is a difficult matter, in fact, to set definite limits to a historical work of this character because of the nature of its publication. It seems essential that some preliminary sketches be introduced giving an account of the progress of psychiatry, a history of the different methods of caring for the insane, a sketch of the architectural advances which have been made both as a result of the original "*Propositions*" and in the modifications which afterwards were made by the

erection of group buildings, detached buildings, cottages and industrial buildings. It also seems advisable that there should be a careful sketch of the development of scientific work in the different institutions, of the growth of non-restraint methods in America, and of the substitution of occupations, industries and recreative amusements for restraining apparatus. It further seems desirable to have a sketch of the changes which have occurred in every state in the laws of commitment, the growth of voluntary admissions and the parole of patients. The change of attitude of the profession of medicine toward the whole subject of insanity has also been so great as to be worthy of record in this permanent manner.

If the manuscript of the history of the individual states be prepared alphabetically, and I see no help for it, it becomes important either to give the committee discretion to extend the work to as many volumes as may be necessary to present a full history, or to wait until all the material is in hand to present to the Council or to the Association before any printing is begun. It would seem preferable to give the committee, in connection with the President and Secretary-Treasurer, discretionary powers as to printing. Three years ago, at Washington, a continuing appropriation of \$250 per annum was made to collect material and to defray the expenses of the undertaking. Of this amount less than \$225 have been expended, leaving an unexpended appropriation of a little more than \$500. In the absence of any definite instructions from the Association in the matter, the committee will make the following recommendations:

I. That the manuscript be completed as speedily as possible, and that the power to print it be left discretionary with the committee, the President and Secretary-Treasurer of the Board.

II. That illustrations and ground plans be introduced wherever in the judgment of the committee they will add to the interest of the history, and that an effort be made to obtain from individual institutions an appropriation to defray the expenses of its own illustrations. Such illustrations will add materially to the value of the work and the cost to any individual institution need not be at all onerous. Many fine plates are probably already in their possession.

III. A similar question arises as to the publication of original documents. In many instances it is extremely important from an historical standpoint to be able to cite original acts of legislation or original reports of committees. Thus, for example, in the State of New York the report of the committee which preceded the establishment of the Willard State Hospital, is of great value and extracts from it ought to be published. The same is true of certain reports which preceded the founding of the earlier state hospitals. Shall the history comprise such documents?

IV. It seems to the members of the committee that the local interest in the completion of this work would be increased if the committee had power to appoint subsidiary committees.

Very respectfully submitted on behalf of the committee.

HENRY M. HURD, *Chairman.*

DR. HURD.—I make a motion that the recommendations, herein, be referred to the Council.

Motion seconded.

THE PRESIDENT.—It has been moved and seconded that the report of Dr. Hurd be referred to the Council. It is so referred.

DR. MABON.—May I present a report at this time?

THE PRESIDENT.—You may.

Dr. Mabon offered the following resolution:

WHEREAS, The National Committee for Mental Hygiene, an organization for the betterment of conditions among the insane and the prevention of mental disease, has recently received a generous gift which renders it possible to make studies into conditions affecting the welfare of the insane and to assist actively in such measures as will result in improvements, and

WHEREAS, A carefully considered plan of work has been prepared for the study of the existing provisions for the care of the insane in all the states, the laws and methods for commitment and their practical operations, care pending commitment, after-care, social service and the facilities for instruction in mental diseases in the medical schools, and

WHEREAS, The success of this important new movement depends very largely upon the co-operation of all those interested in the welfare of the insane, therefore, be it.

Resolved, That the American Medico-Psychological Association expresses its gratification that private philanthropy has made this work possible, and be it further

Resolved, That the American Medico-Psychological Association and its members individually heartily co-operate in order that the success of this movement on behalf of the insane may be assured.

DR. MABON.—In presenting this resolution, I wish to say that twelve members of the National Committee for Mental Hygiene are members of this Association. The press notice which I will read may be of interest to the members of this Association.

"At the fourth annual meeting of the National Committee for Mental Hygiene, held yesterday afternoon at the Hotel Manhattan, announcement was made of the gift to the organization of \$50,000, immediately available for the inauguration of its work. The donor, who has requested that no public mention of his name be made at present, has promised another gift of \$50,000 toward a permanent endowment fund as soon as \$200,000 has been raised.

"This gift makes possible the active inauguration of a national movement for mental hygiene, the first, so far as known, undertaken in any country. It will take the form of a systematic effort to improve conditions affecting

the insane, as well as the education of the sane on the subject of mental disorders, their known causes, prevention and cure.

"The work provided for by the gift is to be begun at once in the form of a survey of the national field, to be made by a special sub-committee of which Dr. William L. Russell, Superintendent of Bloomingdale Hospital, is chairman. Dr. Thomas W. Salmon, of the United States Public Health and Marine Hospital Service, who has been granted a leave of absence for the purpose, will be in charge of the active work of the survey. The National Committee for Mental Hygiene has opened an office in the Germania Life Insurance Building, 50 Union Square, and all its work will be directed from there.

"The chief object of the National Committee, after it shall have collected the facts, is to seek to co-ordinate all work for mental health and the treatment of mental disorders throughout the country. It aims to make its headquarters a clearing-house for the prosecution of this work, and a center for the organization in all the states of local societies similar to the Connecticut and Illinois societies for mental hygiene, and the Committee on Mental Hygiene of the State Charities' Aid Association of New York. It will thus encourage and aid the establishment, under the direction of such societies, of social service, including prevention, advice and after-care. And in general it will seek in every way to raise the standard of American knowledge and practice in the prevention and cure of mental disorders."

As stated yesterday, the committee has already expended \$1000 in having the laws of the different states summarized. Now, briefly, the summaries are as follows:

EXPLANATORY NOTES REGARDING SUMMARIES OF LAWS RELATING TO THE
INSANE, COMPILED BY MR. JOHN KOREN, SPECIAL EXPERT
OF THE U. S. CENSUS BUREAU.

"The summaries cover the existing laws in each state, including the District of Columbia. The provisions made for insane outside of Continental United States have not been considered.

"The summaries are based upon a first hand examination of the codes and statutes of the respective states, ending with the year 1911. The new legislation for 1912 has been added where any statutes were enacted that modified or supplemented previous laws.

"The underlying purpose has been to present the summaries in such a form that comparisons may readily be made between states in regard to the most important provisions of the laws. This necessitated the adoption of a uniform scheme and of stating the laws of the different states under specified heads regardless of the fact that the codes and statutes follow their own order of presentation. Any other procedure would have rendered comparisons very difficult, if not impossible.

"The matter contained in the summaries is comprised under the following heads:

"1. Administration and supervision.

a. General. b. Institutional administrative and supervisory agencies.

"2. Provisions for the care of the insane.

In institutions—state, local.

"3. Commitment.

a. Classes committed. b. Legal procedure in commitment.

"4. Conveying patients to the hospital.

"5. Transfer of patients.

"6. Parole and discharge of patients.

"7. Cost of maintenance.

"8. Criminal insane.

"To a thorough understanding of state asylums of care of the insane belongs, self-evidently, a statement, not only of institutional management, but of general administration and supervision. Therefore, the composition, general powers, and duties of state boards of insanity, state boards of charities and correction and other supervisory bodies are given in some detail. It also seemed desirable to outline briefly what the laws prescribe in regard to institutional management.

"Under 'provisions for the care of the insane' is shown the number of state hospitals in each state and mention made of local institutions.

"The portions of the law contained under divisions 3, 6 and 8 have been summarized with due regard to details as they are of special importance. The original text has been followed as closely as possible. Briefer statements could have been obtained by avoiding the language of the statutes, but not without a definite loss and, perhaps, the bewilderment of persons familiar with the laws of their own state. The original order, in which the legal prescriptions occur, which for many states is far from logical, was not compatible with a scheme of presentation usable for purposes of comparison. A great mass of mere verbiage has been cut out. The prescriptions concerning forms of records, interrogatories, etc., were wholly omitted as lacking in general interest and making for inordinate length.

"A few codes make much of prescriptions that for the most part are left to the discretion of boards of managers of hospitals, for instance, in regard to postal facilities for patients and the like. Matters of this kind were usually omitted, likewise the often very lengthy enactments concerning bookkeeping, financial statements, etc.

"The unequal emphasis placed by the codes upon the obviously important and obviously unimportant is necessarily reflected in the summaries; and from the point of view of some, matters have been omitted which they may regard as significant. This was unavoidable. It is believed, however, that no essentials have been left out.

"Although the criminal insane are relatively not numerous, the legal provisions in regard to them have been stated in detail because of the growing recognition of the importance of the subject.

"References in the margin make it possible at once to refer to the original code or statute from which the section in question was taken.

"An examination of the summaries soon make it clear that some states legislate in detail about matters which in other states are supposedly left to the regulation of the boards of trustees or managers of hospitals. There-

fore, in some instances the summaries should be considered together with the rules and regulations established by local hospital boards.

"Considered as a whole, the laws relating to commitment and care of the insane in the United States may be said at the present time to form a chaotic mass and to represent all sorts of stages of development or lack of development. It is a common observation that the states with the most highly developed systems of care of the insane also have the best and most complete laws, and it seemed entirely appropriate to give the summaries for such states in greater detail than the others."

It seems to me that every member of the Association should have at his disposal copies of this publication, and I am sure the committee would be glad to furnish them, if a sufficient number were ordered, at a reasonable price. We wish to get the endorsement of this Association, of the work attempted by this Society.

DR. EVANS.—What would be the cost?

DR. MABON.—I have no way of getting at it, but the laws of all the states are numerous, and would make a good-sized volume. I should suppose it would not exceed one dollar.

DR. EVANS.—I take it for granted that the condensation of these laws is being asked for from the various states directly from this organization, or through the Bureau at Washington, because I have had a condensation of the laws of New Jersey sent to me for approval, and I did not know what form it would probably take. At any rate, whatever the cost, if less than five dollars, you can be sure of a few of us to support such a thing.

THE PRESIDENT.—I will ask the Secretary to read this resolution of Dr. Mabon's so all may understand it before I put the question.

The Secretary then read the resolution as above.

THE PRESIDENT.—What shall we do with this resolution?

DR. MITCHELL.—I move it be adopted.

DR. EVANS.—Seconded.

Motion was carried and the resolution adopted.

The following papers were read:

"The Legitimate use of Psychic Influences in the Treatment of the Sick," by Henry C. Eyman, M. D., Massillon, O. Discussed by Dr. Searcy, Dr. Woodson, Dr. Skoog, Dr. Burr, Dr. Gilliam, and Dr. Eyman.

"Some Atypical Forms of General Paralysis," by August Hoch, M. D., New York, N. Y. Discussed by Dr. Richardson, Dr. Miller, and Dr. Hoch.

"Psycho-sexual Anæsthesia in a Case of Psychopathic Personality," by Morris J. Karpas, M. D., New York, N. Y.

THE PRESIDENT.—Immediately following adjournment there will be a meeting of the Council in this room.

Adjournment.

AFTERNOON SESSION.

THE PRESIDENT.—The Association will please come to order.

The first thing on the program is a paper entitled, "Exciting Causes in Psychiatry," by A. J. Rosanoff, M. D., Kings Park, N. Y.

THE PRESIDENT.—The next in order is the report of the Council.

REPORT OF THE COUNCIL FOR MAY 30, 1912.

The Council has received the following applications. In accordance with the constitution, final consideration of these will be deferred until next year: For honorary membership: Hon. Goodwin Brown, Yonkers, N. Y.

For Active membership: C. A. Nevitt, M. D., Lexington, Ky; George Mitchell Parker, M. D., New York, N. Y.

The Council recommends that James S. Hammers, M. D., Danville, Pa., be elected to Associate membership.

The Council recommends that Horace G. Ripley, M. D., Taunton, Mass., be transferred from Associate to Active membership.

The Council makes the following recommendations:

That the incoming President be authorized to appoint a Program Committee for the next annual meeting, and also a Committee of Arrangements.

That the dues for the ensuing year be fixed at the usual rates, viz.: Five dollars for Active members and two dollars for Associate members.

That the Secretary be authorized to publish the Transactions of this meeting.

That, in accordance with custom, the Secretary be authorized to reimburse Hon. Herbert P. Bissell for his traveling and hotel expenses.

The Council has received and accepted the report of Dr. Henry M. Hurd, Chairman of the Committee on Institutional Care of the Insane, concurs in the recommendations therein, and authorizes him to proceed as indicated in this report.

The Council has received a letter from Charles A. Boston, Vice-President of the Society of Mental Jurisprudence, asking that this Association appoint a committee to co-operate with other committees, to consider "the desirability of changing the legal measure of responsibility of those mentally diseased or defective, so as to accord more thoroughly with the views of students of the causes of mental defects," and recommends, that the Secretary reply to this letter, saying that the President of this Associa-

tion will be glad to suggest one or more members for them to appoint on this committee.

Respectfully submitted,

CHARLES G. WAGNER, *Secretary*.

On motion, duly seconded, the report of the Council was accepted and adopted. The names of physicians proposed for election to come up tomorrow in regular course.

THE PRESIDENT.—The members will be very much interested and pleased I am sure, to know that there have been received previous to and during this meeting 143 new applications for membership, which is 100 more than has ever been received at any previous session. An eloquent tribute to the industry and tact of your Secretary.

THE PRESIDENT.—The Council will meet again immediately following this session.

We will now have what promises to be one of the most interesting and entertaining parts of our program, it is a symposium on the "Occupation of the Insane." This will be followed by illustrations with lantern slides, and then will follow the discussion. The first paper on the program is by Dr. Herring, of Baltimore, Md.

The following papers were then read:

"Diversional Occupation of the Insane," by Arthur P. Herring, M. D., Baltimore, Md.

"Occupation for the Insane," by C. Floyd Haviland, M. D., Kings Park, N. Y., read by Dr. Chester L. Carlisle, Kings Park, N. Y.

"The Re-education of Dementia Præcox Cases and Industrial Training of the Chronic Insane," by Charles T. La Moure, M. D., Gardner, Mass.

"A Nurse's Course in Occupational Diversion," by William Rush Dunton, Jr., M. D., Towson, Md.

"Experiences in the Temporary Construction Camp for the Negro Insane, with Special Reference to Co-operation of Industries," by Robert P. Winterode, M. D., Crownsville, Md.

These papers were discussed by Dr. Neff, Dr. Herbert B. Howard, Dr. Tuttle, Dr. R. S. Carroll, Dr. Hutchings, Dr. Briggs, Dr. J. C. Clark, and Dr. Richardson.

DR. RICHARDSON.—It seems to me that this discussion ought to end in some sort of action on the part of the Association. We realize, those of us who have tried these handicrafts, that there is no other agent so useful therapeutically in the treatment of the insane, and the exhibit downstairs has

been of great benefit to those of us who have these departments in our institutions, because it helps us to find new occupations. It seems to me to be a splendid thing if the Association would adopt the idea of having an annual exhibit of arts and crafts work and let those who have something in that line, bring samples of work done in their institutions, and show in the various stages of the work as well as the finished product. It would not be a great deal of work for any one person. It would save us going around from one hospital to another and getting new ideas, and I move, Mr. President, that we make this exhibit of handicrafts an annual affair of the Association, and that all the hospitals in the country be invited to participate in it.

DR. HURD.—It would be a good idea to have some money, for there would, probably, be considerable expense connected with it.

THE PRESIDENT.—I understood that the matter was simply to be encouraged and the Association was to bear it in mind and see what could be done.

DR. RICHARDSON.—I intended it for a motion that we carry it through and that the Association spend a few dollars to carry it on.

THE PRESIDENT.—May I make the suggestion that you bring this up at the morning session tomorrow and be prepared to give a little talk. If you will bring it up again in the morning it will receive the attention it deserves. We will leave the matter open until then.

The meeting stands adjourned.

FRIDAY, MAY 31, 1912, 10 A. M.

THE PRESIDENT.—The Association will please come to order.
The report of the Council.

REPORT OF THE COUNCIL, MAY 30, 1912.

The Council has received the following applications for Active membership. In accordance with the constitution, final consideration of these will be deferred until next year: J. Ralph Jacoby, M. D., New York, N. Y.; John Nevin, M. D., Jersey City, N. J.

The Council recommends that the next annual meeting of the Association be held at Niagara Falls.

That the date of the next annual meeting be fixed for the week following the annual meeting of the American Medical Association.

Respectfully submitted,

CHARLES G. WAGNER, *Secretary*.

On motion, duly seconded, the report of the Council was adopted.

THE PRESIDENT.—The next in order is the election of the members proposed yesterday. The Secretary will read the names.

The Secretary read the following: Jessie Peterson, M. D., Norristown, Pa.; Marion O'Harrow, M. D., Philadelphia, Pa.; Albert C. Buckley, M. D., Philadelphia, Pa.; James S. Hammers, M. D., Danville, Pa., for Associate membership. Horace G. Ripley, M. D., Taunton, Mass., for transfer from Associate membership to the Active class.

On motion, duly seconded and carried, the Secretary was instructed to cast the ballot of the Association electing them to membership.

THE PRESIDENT.—The Secretary has cast the ballot of the Association, and these physicians are elected members of the Association.

DR. PILGRIM.—In 1910 there was a committee appointed to report on the status of medical and scientific work in the hospitals of the several states and provinces, and thus far no definite report has been made. This seems to me to be a matter of great importance, and I rise to ask if it would not be desirable to ask the chairman of this committee to make its report next year?

THE PRESIDENT.—An exceedingly good suggestion. This committee was appointed and has been continued and all it has done for the Association so far as we know, is to report no progress. The suggestion of Dr. Pilgrim is timely, and his idea is that by another year they should make a report or show cause why they should not be discharged.

DR. PILGRIM.—That is my idea, and I will put it in the form of a motion.

Which motion was duly seconded and carried.

DR. CAREY.—I have a resolution here which I have been requested to present to the Association:

WHEREAS, Certain classes of mental defectives now exist in large numbers, and

WHEREAS, These classes are constantly and rapidly increasing, and

WHEREAS, The President of this Association has so forcibly called our attention to these conditions in his admirable annual address, and

WHEREAS, This, the American Medico-Psychological Association, consisting of representative scientific men who are constantly brought in close contact with these conditions and their results, should take some action to place itself upon record concerning this question, therefore, be it

Resolved, That a committee consisting of five Active members of this Association be appointed by the President thereof, to be styled, "The Committee on Applied Eugenics," to carefully consider the various phases of the subject and report at the next meeting.

DR. CAREY.— I move this resolution be adopted.

Which motion was duly seconded and carried.

Dr. J. Percy Wade offered the following resolution:

WHEREAS, The Diversional Occupation of the Insane is a subject of such practical importance in the treatment of the various psychoses, and

WHEREAS, The methods embraced in this form of treatment have been introduced in a comparatively small number of public and private institutions for the insane, and

WHEREAS, It seems desirable for the welfare of the patients, as well as to improve conditions in said institutions in this country by means of affording occupation and recreation for all classes of cases adapted to such treatment, therefore, be it

Resolved, That a committee of three from the American Medico-Psychological Association be appointed by the President to make a survey of the private and public institutions for the insane in this country, regarding the occupational and recreational methods in use and report at the next meeting of this Association any recommendations looking to the general adoption of such forms of treatment.

THE PRESIDENT.—You have all heard this resolution just offered, what shall be done with it?

DR. HURD.—I move that it be adopted.

Which motion was duly seconded and carried.

DR. RICHARDSON.—I would ask that this committee be also authorized to promote and manage an annual exhibit of the arts and crafts work done in all the hospitals for the insane, and that they invite all the hospitals to take part in this exhibit. I, therefore, move that this be added as an amendment.

THE PRESIDENT.—This is a good amendment; it may not be desirable to incur expense in this exhibit, but this is only an individual opinion.

DR. C. G. HILL.—I suggest that these exhibits may occur without making it binding on the Association to carry them out; if it did not seem practicable it would not obligate the Association.

DR. RICHARDSON.—I will amend the motion in this way—that the Association have an annual exhibit of arts and crafts if in the opinion of the Association it is feasible.

DR. HILL.—I second the motion.

Motion was carried.

THE PRESIDENT.—It is so ordered.

The following papers were read:

"Polyneuritic Delirium—Korsakoff's Psychosis," by William C. Sandy, M. D., Trenton, N. J. (Read by title.)

"A Case of Catatonic Hirntod," by Samuel T. Orton, M. D., Worcester, Mass. Discussed by Dr. Hill.

"Further Observations on Alzheimer's Disease," by S. C. Fuller, M. D., Westborough, Mass. and H. I. Klopp, M. D., Allentown, Pa., read by Dr. Fuller. Discussed by Dr. Richardson and Dr. Fuller.

"Discharge of Insane Criminals," by W. M. English, M. D., Hamilton, Ont. Discussed by Dr. Burgess, Dr. Woodbury, Dr. Hill, Dr. Gorst, and Dr. English.

"The Relation of Certain Psychoses to the Neuroses," by Chester L. Carlisle, M. D., Kings Park, N. Y.

THE PRESIDENT.—I am ready now to report the names of the two committees asked for, and because of the fact that the work is likely to be done by correspondence, I will name the chairmen:

Committee on Diversional Occupation of the Insane: Dr. J. Percy Wade, Maryland (chairman); Dr. W. W. Richardson, Pennsylvania; Dr. Charles T. La Moure, Massachusetts.

Committee on Applied Eugenics: Dr. H. M. Carey, Pennsylvania; Dr. E. E. Southard, Massachusetts; Dr. M. L. Perry, Kansas.

DR. HILL.—I move that our former President be on the Committee on Applied Eugenics, and that it is the sense of this body that our President, Dr. Work, should constitute one of the committee.

Motion duly seconded and carried.

DR. SEARCY (presiding).—The Chair will appoint Dr. Work as chairman of that committee, and will also appoint Dr. Hill as the fifth member of the committee.

THE PRESIDENT.—We will now have the report of the Committee on Resolutions.

DR. HILL.—Dr. Blumer is not here and has asked me to make a report, as follows:

Resolved, That, as members of the American Medico-Psychological Association, we are sensible, without specification of the many items of indebtedness that are obvious to all who have insight to discern the relation of cause and effect, of our obligation for all that has tended to make this Sixty-eighth Annual Meeting one of the most successful and most memorable that our long and eventful history records, and that we, therefore, extend a hearty vote of thanks from the ranks to the President and officers of the Association, as well as to the Committee of Arrangements, whose foresight and efficient generalship in the field have compelled this

acknowledgment of the service and achievement of which, hereby, we confess ourselves the delighted and grateful beneficiaries.

Resolved, That the thanks of this Association are, hereby, tendered to our retiring President, who has contributed so much to make this one of the most successful meetings of our long and eventful career, by the judicious selection of the Program Committee, his Committee of Arrangements and all other committees, as well as his own personality, his executive capacity and his brilliant wit that has enlivened many dull moments of our meeting. We would also thank the hotel management for providing so thoroughly for our comfort and convenience.

Respectfully submitted,

G. ALDER BLUMER,
B. M. CAPLES,
CHAS. G. HILL.

On motion, duly seconded, the report was accepted and adopted.

THE PRESIDENT.—The report is accepted and adopted, except so far as it refers to the Chair.

There is a certain sadness connected with the performance of any duty for the last time. The sadness in this instance is all on the part of the Chair. I am sure that you will feel very much relieved to have our final adjournment, but I wish to thank you for your prompt attendance and your careful attention, which has contributed so much to the success of this meeting. The form of duties delegated to your presiding officer prescribes that he finally sings his own requiem by introducing his successor.

It seems an incongruous act for me to pass the gavel of authority to your new President, and attempt this formality for one who has been identified with this Association for a quarter of a century. Certain I am you will ask for him no guarantee. Trained a soldier in the war between states; schooled in the university of the world; graduated in medicine; now nearly half a century in its practice, we might truthfully say of him: "The world is his country and to do good is his religion." To such a man the office I prized so highly must seem a little thing. For four years he fought with the sword for his people. For forty-five years he has fought with his keen mind the diseases of his people. He lives in the city that saw his birth, as though he, too, had said, "Entreat me not to leave thee nor to return from following after thee . . . thy people shall be my people . . . and where thou diest will I die and there will I be buried." A sentiment unknown to the nomad, but which has in it the essence of life. Admired, respected and honored here, for his professional attainments; trusted, counceled and loved at home, for himself; surely the wealth of a Cræsus must seem mean to such a man, by comparison. Is there some subtle virtue in the Southern sun? Is there a fountain of perpetual youth? For more than three-score and ten years that sun has shone on him. Some influence has defied the features age wears. For his eye is not dimmed, neither are his natural forces abated.

This, gentlemen, is your new President: the soldier, student, scientist, and always a gentleman, Dr. James T. Searcy, of Alabama. (Applause.)

DR. SEARCY.—Mr President: The kindness and the complimentary manner of your words embarrass me more than you know. "The unexpected happens." Some two thousand miles away from the meeting in Denver, for some reason you initiated there a procedure that culminates to-day in the honor put upon me. For the past twelve months I have been trying to explain this to myself and I have not a satisfactory explanation yet. Kindly let me say that I appreciate, of course, the high honor, personally, but I recognize that the compliment is extended and pointed towards the section of the country from which I come. That fact is all the more gratifying to me. It indicates that the principle prevails throughout this organization that we are a national body. A far greater preponderance of membership lies in this part of the country. I feel a reluctance to take the Chair following such an excellent administration as we have just had. Besides, the prominence of the position is getting higher and higher every year.

As has been intimated by our President, I have been connected with this Association for some time. I was with this body, not as a superintendent, but invited to read a paper about twenty-five years ago at Washington. The personnel of the whole organization has greatly changed since that time; there are very few of those members now. Time has done a great deal since then. There is more permanency; political changes are less than there used to be, and there is being injected into our proceedings more of a scientific feature.

I cannot take the Chair without expressing my high appreciation of you, Mr. President, as a presiding officer and as an executive officer.

DR. WORK.—The King is dead; long live the King.

DR. SEARCY.—I want to repeat my appreciation of Dr. Work, of his ability as a presiding officer. I wish it could continue longer. I shall have to lean upon him and upon a number of you, and I do not wish to begin these duties without acknowledging that I shall have to depend most heavily upon our worthy Secretary; we could not get along without Dr. Wagner, and I shall look to him more than to anybody else for help.

DR. WORK.—I wish to inform you, Dr. Searcy, that you need have no fear, whatever, as regards the Secretary. Dr. Wagner can be depended upon absolutely to arrange every detail, and to give us a better meeting each year during his service.

DR. SEARCY.—There being no further business, I declare this meeting of the Association adjourned.

CHARLES G. WAGNER, *Secretary*.

Correspondence.

Editors American Journal of Insanity:

My opinion regarding epilepsy is that it is, *per se*, a disease of the psychic center or cerebrum, due to an inherent peculiar faultiness of its structures and functions.

The convulsion is always initiated by a more or less complete, generally an entirely complete, unconscious condition, which proves it to be in the conscious cortex.

It is a reasonable hypothesis that, the neurons of the epileptic suddenly withdraw the associated contact of their connecting fibers, which condition of withdrawal constitutes unconsciousness.

And that, an unconscious state of the cortex is always, normally or abnormally, produced by the withdrawal of the associated contact of the afferent and efferent fibers of the neurons.

And that, in sleep, in anæsthesia, in shock, in syncope, in concussion, and in the initiatory stage of an epileptic convulsion, this condition occurs. The associated contact of the fibers of the neurons is withdrawn; their erectile wakefulness is suspended.

In epilepsy, there is an inherent faultiness of function of this kind in this complex center, peculiar to the person, which is liable suddenly to produce this withdrawal of associated conscious contact.

The convulsion that follows is in the cortex; consisting in spasmodic attempts to resume an associated contact of the cells through their fibers. The peculiarity of the disease is, this attempt at resumption occurs in spasmodic waves of action—not steadily, as occurs in a normal return to consciousness.

Waves of convulsion, of this kind, sweep over the cortex, until, after an exhausted or quieted stage, associated contact or consciousness is gradually resumed.

The voluntary muscles over the body are also convulsed, because the motor tracts of the cerebrum, which control them, are convulsed. The convulsion of the voluntary muscles is the

most prominent symptom, because their movements are open to outside observation. The seat of the trouble, however, is in the cortex; it is the part convulsed.

For this reason an epileptic convulsion, often repeated, does injury to the brain. The stress and strain of repeated convulsions impair cortical structures and functions—injure the neurons of the psychic center.

In this way, any inherent tendency or predisposition to abnormal mentality is increased, and eventually made to show itself in the deportment of the person; so that, any psychic peculiarity of the epileptic person is made worse, in time; whether it be towards hysteria, paranoia, melancholia, mania, irascibility, pugnacity, or any other aberrancy; and, like in all progressive, impaired conditions of the brain, the eventual condition is dementia—a generally impaired condition of all psychic abilities; so, most epileptics wind up in terminal dementia.

I do not think we can explain epilepsy, or the results of epilepsy, more satisfactorily than along the lines I express above. I am, sirs,

Very truly yours,

J. T. SEARCY, M. D.

Notes and Comment.

THE ATLANTIC CITY MEETING.—The Atlantic City meeting of the American Medico-Psychological Association presented many pleasant features and all worthy of especial mention. The weather was fine; the sky was bright; the sea sparkling; and a succession of cool, delightful sea-breezes day after day contributed materially to the comfort of all members.

The place of meeting was well-chosen and the spacious windows of the Marlborough-Blenheim afforded at all times an inspiring view of white-capped waves and fine surf, most novel and attention-compelling sights to all who dwell at a distance from the sea.

The attendance of members was large during the entire series of sessions from Tuesday morning until Friday noon. The papers were of exceptional quality and the discussions were full and often illuminating. If any criticism could be offered of the programme it might be justly directed to its over-fullness. There was no leisure for anything but hard work and had it not been for the energy and promptness of one of the best presiding officers the Association has ever had, the lengthy programme could not have been completed with the close of the sessions. No other similar medical body accomplishes so much work or so regularly extends its sessions to the fourth day.

The papers were generally read *in extenso*, and the twenty-minute rule was on occasion applied with Procrustean severity. This suggests the desirability of presenting papers in abstract whenever possible, without a full reading, which reading may later be had in the JOURNAL OF INSANITY or the Transactions whenever the interested member desires to consider them more critically.

The exhibits of industrial and recreational occupations from Crownsville, Springfield and Sheppard Hospitals, Maryland, and the Gardner, Mass., State Colony, attracted much attention and gave rise to an excellent discussion. It is to be hoped that similar exhibits may be a regular feature at future meetings. The

address of the President, with its stirring appeal to fresh and effective effort to prevent insanity by checking unfit marriages and preventing the birth of defectives by sterilizing criminals and imbeciles, was much applauded. All felt that the time had come to arouse public opinion to deal with the whole question of eugenics in a radical manner.

The failure to receive a report from the committee appointed two years since to report on the scientific work prosecuted by institutions for the insane throughout the country was a disappointment to many. It is anticipated that the committee will be ready to report at the next meeting.

It was gratifying to observe that the preparation of a history of the institutional care of the insane received much encouragement and many promises of coöperation. The time seems ripe to push this great work to a speedy conclusion. Where all the papers were so meritorious it seems unnecessary to individualize the work of any person for more particular mention. The volume of Transactions and the pages of the JOURNAL will amply exemplify the excellent character of the work presented.

It is a matter of regret to the editors personally that it was decided to be best by a small majority to sever the connection with the Congress of American Physicians and Surgeons—but the majority should rule!

The next meeting is to be held at Niagara Falls at a time to be announced by the council. Dr. J. T. Searcy, of Tuscaloosa, Alabama, was elected President; Dr. Carlos F. MacDonald, of New York, Vice-President; and Dr. Charles G. Wagner, of Binghamton, Secretary-Treasurer, for the coming year. The success of the meeting was largely due to the efficient work of Dr. Work, the retiring President, and of Dr. Wagner, the Secretary. All praise to them!

NATIONAL CONFERENCE ON PELLAGRA.—In response to invitations from the State Medical Association and the State Board of Health of South Carolina, the National Association for the Study of Pellagra will hold its next triennial meeting in Columbia, S. C., October 3 and 4, 1912—the week following the Washington meeting of the XV International Congress on Hygiene and Demog-

raphy. Invitation is extended to all persons interested in pellagra to participate in this meeting.

The co-operation of officers of the Government Medical Services, State Boards of Health and State Hospitals for the insane is especially solicited.

It is expected that several foreign governments and medical organizations will be represented at the conference.

Persons wishing to present papers will please address the special committee consisting of Drs. J. W. Babcock, J. J. Watson, and J. H. Hayne, Columbia, S. C.

BOSTON PSYCHOPATHIC HOSPITAL.—The Psychopathic Hospital, 74 Fenwood Road, Boston, was opened for public inspection June 21 and for the reception of patients two days later. The institution is officially a department of the Boston State Hospital and its business arrangements are to be under the charge of the Superintendent of the Boston State Hospital—Dr. Henry P. Frost. The Director of the institution is Dr. E. E. Southard, Pathologist to the Massachusetts Board of Insanity and Professor of Neuro-pathology in the Harvard Medical School.

The Chief of the Medical Staff is Dr. Herman M. Adler, formerly of the Department of Theory and Practice of the Harvard Medical School, and, more recently, Pathologist to the Danvers State Hospital. The immediate executive arrangements are under the control of Dr. Stephen E. Vosburgh, formerly Assistant Physician at the Boston State Hospital.

The Pathologist and Chief of the Out-Patient Department have not yet been appointed.

The hospital contains 100 beds—50 of which are in a separate pavilion called the Reception Ward, and 50 are on the top floor of the main building in the so-called Observation Ward.

The Reception Ward has a clearing-house function for the insane of Boston. The Observation Ward is for the investigation of special cases under special arrangements. Much stress will be laid upon investigation of psychiatric problems and upon the social service problems of the Out-Patient Department.

SIR GEORGE H. SAVAGE.—We had occasion in the April number of the JOURNAL to refer to the fact that Dr. Thomas S. Clouston

of Edinburgh had been honored with a knighthood, and now Dr. Savage, who has held in London a position similar to that occupied by Dr. Clouston in the Scotch capital, has received similar recognition. Truly, British psychiatrists are coming to their own, as far as honors from the throne are concerned.

Dr. Savage was for many years the head of the Bethlem Royal Asylum, has been president of the Medico-Psychological Association of Great Britain and Ireland and editor of the *Journal of Mental Science*. For many years he has been engaged in consultation practice in psychiatry in London. Sir George has visited this country and has many American friends and admirers, who will wish to congratulate him. The JOURNAL, on its own behalf, and in that of his many friends in this country, sends greeting and congratulation to him and, at the same time, to his associates in psychiatry in Great Britain and Ireland, that one of their number, and one so signally deserving, should have been included among those recently honored by royalty.

W. B. SAUNDERS COMPANY have just issued a new (6th) edition of their Illustrated Catalogue, which describes some forty new books and new editions published by them since the issuance of the former edition.

The books listed in this catalogue cover every subject of interest to the medical man. The descriptions and illustrations are such as to enable the reader to select easily just the book he wishes on any branch. It is really an index to correct medical literature—an index by which the practitioner, the surgeon, and the specialist can acquaint himself with what is new in the literature of his subject.

This edition also contains an illustration and description of Saunders' new building, now being erected on Washington Square, Philadelphia's new publishing center.

Any physician wishing a copy of this handsome catalogue can obtain one free by addressing W. B. Saunders Company, 925 Walnut Street, Philadelphia.

Book Reviews.

Ueber Nervöse Entartung. By PROFESSOR DR. MED. OSWALD BUMKE, First Assistant in the Psychiatric and Neurological Clinic of the University of Freiburg i. B. (Berlin: Julius Springer, 1912.)

Amid the frequent and lugubrious warnings of social cataclysm, it is comforting to take up a study that combines a critical attitude towards the problem with a more reassuring tone. The book is, in fact, a broad-based inquiry into the rôle of a degenerative process in human evolution; and not, as its title and manner of publication had led the reviewer to expect, a study of certain clinical types. It is a good deal simpler to define the condition than the process; the upshot of the remarks on this phase of the matter being to emphasize its necessarily progressive character, and its possible independence of heredity. The two questions are whether social deterioration is really present, from whatever cause, and whether such deterioration may be grounded in hereditary influences (Morel). The application of Mendel's Law is discussed in the second chapter, unfortunately without reference to recent work done in this country on its relation to the psychoses. Attention is called to a sort of hereditary conservation of energy; the entire sum of inheritable qualities being equal for a given community, no matter how distributed. The question is whether new characters may be formed through inheritance, or more properly if new characters can be thus transmitted. Inheritance of acquired characters is unconditionally negative for the problem; very fortunately so, as the author remarks. This must of course be distinguished from exogenous effects on the germ cells, which, under certain conditions, might be transmitted. Actually, however, this plays no great part in the problem. Though the progeny of a syphilitic or alcoholic parent may suffer gravely, the degeneration is not necessarily progressive, but is apt to be overcome in succeeding generations. The book indeed shows no tendency to exaggerate the hereditary dangers of alcohol or syphilis which show themselves rather in the limitation of viable offspring than in their inferiority; while the social injuries due to these causes are undeniable, they do not come within the proper conception of the degenerative process. The so-called "stigmata of degeneration" are of negligible significance. Even in the hereditary psychoses, the pathological traits do not dominate over the normal ones (Meynert, Sioli); though an isolated exception perhaps occurs in Huntington's Chorea. There is some mention of inbreeding, harmful only when involving an inferior stock, or when of too long continuance. Inheritance does not lead generally to degeneration, but regeneration; and that cause of degeneration whose existence is undisputed (injury to the germ cells), injures only the immediate (second),

generation; further transmission is possible, but not yet shown. In the question if modern civilization carries with it any special conditions favorable to a degenerative process, the author considers that whatever of such factors there are, are apt to be of ephemeral influence. Increasing suicide and admissions to insane hospitals but serve to eliminate so much bad blood from succeeding generations. The difficulty the author takes most seriously is the *Ausrottung der Besten*, whose principal factor is the voluntary limitation of offspring among the higher classes. This can, however, be of serious consequence only in mixed stocks, where the best are not continually replenished by variation from below. And again, this does not come within the technical concept of degeneration. One will, then, scarcely be surprised to find the author sternly opposed to any operative interference with procreation, as well as showing a general disbelief in legal attempts at the regulation of marriages. His attitude is among the most liberal the reviewer has seen expressed from an authoritative source. The final chapter is an inquiry into what symptoms of neurotic degeneration are actually to be found in the history of nations, or comparatively between contemporary nations of different degrees of civilization. A certain increase of neuroticism is admitted, but accounted for on external grounds. Modern civilization has indeed brought about conditions that bring neurotic traits more to the surface, but the present generation has no more fundamentally than any previous generation would have shown under present ways of living.

The book is quite condensed, and only a partial review has been possible. There is a considerable bibliography, which could, as indicated, have included more foreign names. The final impression is that while the race may have little to fear from a specific and progressive process of degeneration, this finding is reached only through a definitive ruling out of some of the main individual factors in social deterioration. If the author's optimism be justified it should in no way lead us to relax the efforts to be opposed to these baleful influences, but should rather give us greater confidence in the prospect of decisive success against them.

F. L. WELLS.

The Life and Work of William Pryor Letchworth, Student and Minister of Public Benevolence. By J. N. LARNED. (Boston and New York: Houghton Mifflin Company. The Riverside Press, Cambridge, 1912.)

Born of English ancestry from Quaker stock transplanted to America in 1766 and secure from pecuniary anxieties by a competence gathered by his own industry and business ability William P. Letchworth was enabled in 1873 at the age of fifty years to devote the remainder of his life to philanthropic works. How well he succeeded the record in the book before us amply shows. The wide range of his interest in public charity is well indicated by the biography appended to the book which presents twenty-four titles on child saving and the better care of children; ten in regard to the insane; eleven on the work of boards of state charities; six on the care of epileptics; and eighteen on miscellaneous topics connected with charity

work, such as the care of the blind, the construction of almshouses, etc. In all of these branches of philanthropy he was a pioneer and did constructive work.

To inform himself more fully as to the best care of the insane he visited Europe to inspect methods there and published the results of his observations in a work entitled "The Insane in Foreign Countries" which attracted much attention. He studied all questions regarding the insane very carefully and painstakingly although it is evident that he did not feel as keen an interest in the subject as he manifested in child-saving, which was eminently his life-work.

He served on the New York Board of State Charities from 1873 until 1896 and only relinquished his connection with the Board when failing health compelled him to seek rest. His services in this capacity at first were almost wholly confined to the betterment of the condition of children in almshouses and orphan asylums. It is due to his persistent efforts in behalf of such children exposed at an early age to pauperizing influences and degrading surroundings that in New York and Michigan this vicious system was broken up and replaced by a system of care in families.

He also accomplished much for the establishment, erection and development of the institution for epileptics known as Craig Colony in New York and for a time served as one of the managers.

He was interested in the preservation of sites and objects connected with the early history of New York and at his death left his beautiful estate at Glen Iris to the State of New York as a public park and a museum of objects of anthropological and historical interest. In whatever pursuit he became interested he labored earnestly and unremittingly with an eye single to the public good. He gathered information thoroughly upon any given subject and was fully prepared to defend his position with a modest persistence which proved irresistible. The book is one of great interest and should be read by all workers in the widening field of charity.

Nineteenth Annual Report of the State Charities Aid Association to the State Commission in Lunacy, Nov. 1, 1911. (New York City: United Charities Building, 105 East 22d St.)

Students of psychiatry always are interested in the reports of the State Charities Aid Association for the reason that they usually assemble a mass of interesting facts and details respecting the most advanced care of the insane. While the present report is not as extended as some of its predecessors it contains much of value. It appears from the statistics presented that the total number of the insane in the state hospitals and private institutions of New York upon October 1, 1911, was 33,259 persons, an increase of 602 over the previous report. Of this number 30,999 were in state hospitals (not including Matteawan and Dannemora). This number is largely in excess of the certified capacity of existing institutions and the consequent overcrowding, especially in institutions in the vicinity of New York City, interferes much with the proper and effective treatment of patients. The

remedies urged by the Charities Aid Association are the immediate completion of the Mohansic State Hospital in Westchester County, to provide for 2000 patients, and the establishment of a farm colony somewhere on Long Island, and the rebuilding and enlargement of the dilapidated Long Island State Hospital. These measures are urged in preference to the scheme to select a new site for the Utica State Hospital and its enlargement to provide for 2000 patients because of the hardships to patients of the journey to Utica and the desirability of treating patients living in New York in institutions near to the city so that they may receive visits from friends. It is surely wise to build hospitals with regard to the convenience of patients rather than to satisfy the claims of localities.

In the review of legislation it is pointed out that the recommendations of Mr. H. C. Wright in his report on "Methods of Fiscal Control" have borne fruit in the passage of an act giving power to the Lunacy Commission to employ additional engineers, inspectors and experts to advise the state hospitals as to the purchase, handling and consumption of supplies and also as to the best management of farms. His suggestion as to the wisdom of allowing estimates to be made with less detail at the discretion of the Commission has also been incorporated in the law. The reconstitution of the purchasing committee by the appointment of three superintendents and two stewards instead of the Auditor of the Lunacy Commission and two stewards is also commended—as also the appointment of an inspector of buildings and an inspector of supplies. Expert examiners of beef and butter are to be employed from time to time. These steps are undoubtedly in the right direction and yet one cannot help feeling that the increased machinery must be an added expense and that possibly some of these important positions may fall into the hands of experts of political rather than professional ability. The value of the changes must depend wholly on the men who are appointed to execute the new laws.

The reports of visitors to state hospitals are always interesting although of course of varying excellence. Thus for example it is at present a matter of importance to learn how many persons in the state have availed themselves of the law permitting voluntary admission to a state hospital. We learn that fifteen persons have been admitted at Middletown and twenty-two at Rochester, but the other visitors make no reference to the numbers thus received and we are left in the dark. The reader can appreciate the wisdom of not requiring local boards of visitors to follow any formal schedule in their reports, but this and other similar gaps in their reports show the need of supplying them with "suggestions" as to the character of the information desired.

An excellent suggestion is made by the visitors to the St. Lawrence Hospital as to the desirability of doing more to render the positions of the assistant medical officers attractive. In many of the institutions owing to lack of accommodations and small salaries celibacy and poverty seem to be inevitable. No wonder there are vacancies in the medical staffs. Provision should be made for married men so that they may choose psychiatry as a life work.

The excellent report from Rochester on the re-education of cases of dementia præcox by suitable training and employment and persevering personal effort is worthy of wide circulation.

The methods of after-care at Manhattan, Central Islip, Hudson River and Willard are of paramount importance and should be extended to all hospitals. This report ought to be read by every superintendent.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M. D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in Northwestern University Medical School, Chicago; and FREDERICK PETERSON, M. D., Professor of Psychiatry, Columbia University. Seventh edition, revised. (Philadelphia and London: W. B. Saunders Company, 1911.)

That this work has reached a seventh edition indicates that it has met in some degree the needs of a certain class of readers. The authors state that it is written for students and general practitioners and makes no pretense to be other than a carefully prepared text-book. The preface to the seventh edition claims that it embodies "every substantial advance in the domain of nervous and mental diseases up to the present time."

The portion devoted to nervous diseases is written by Dr. Church and has been apparently very carefully revised and to some extent rewritten. The opening chapter upon general physical examination is probably sufficient in detail for the general practitioner, but there are some things which he might wish included or elaborated more thoroughly. For example, lumbar puncture is dismissed with but short notice and with absolutely no description of methods.

In the portion on mental diseases the same disappointment meets the reader that has been found in previous editions. There appears a lack of proportion in the attention given to various phases of the subject and to various forms of insanity. Heredity, cranial and dental anomalies and anomalies in general occupy nearly twenty-four pages while but fourteen pages are devoted to the remaining etiological factors of insanity in which no mention is made of the influence of disease or defect of the thyroid gland. While it is shown by a table taken from the report of the N. Y. State Lunacy Commission that in 5222 admissions to the N. Y. State hospital for 1909, paranoia was not diagnosed once while paranoic conditions were found in 248 instances, less than five per cent, the author devotes twenty-five pages to paranoia which pages are, by the way, identical as far as a close examination reveals with those published in the first edition of this work. Arterio-sclerotic conditions receive no notice except in connection with other forms of insanity. Senile dementia and other senile psychoses are given but a little over four pages, and paresis but thirteen. It is strange to find no reference to lumbar puncture, now practiced almost as a routine in every modern hospital as a method of diagnosis in paresis, except brief mention in the part of the volume devoted to nervous diseases. The eight and one half pages devoted to dementia

præcox will, we fear, give neither the student nor the general practitioner a very clear conception of the condition.

Dr. Peterson is not in favor of hospital care for the well-to-do or wealthy, but recommends home care or care in a country home with nurses for those who can afford it, or foreign travel.

There are those no doubt who will agree with him but we do not believe that psychiatrists of experience in what a well organized hospital can and does do for these cases will concur with his dictum. Travel for most mental cases is bad, home care, even in the city or country houses of the very wealthy, lacks many elements which can nowadays be found in many hospitals where constant medical supervision, not irregular and brief visits, and the services of trained nurses, methods of re-education and occupation and diversion are found which cannot be had in private houses nor in many so-called private sanatoria.

The work of both Drs. Church and Peterson has in many respects been well done, but it must be evident, we feel, to even a casual reader that the part on mental diseases does not measure up to the standard set by that on nervous diseases.